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MINNESOTA MEDICINE

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine, and Minneapolis Surgical Society

Owned and Published by
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VOLUME 33

JANUARY—DECEMBER, 1950

EDITORIAL AND BUSINESS OFFICES
2642 University Avenue - - - - - - - - - - - - - Saint Paul 4, Minn.
BUSINESS MANAGER
J. R. Bruce

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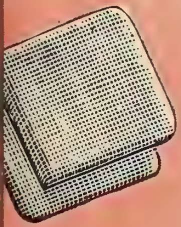

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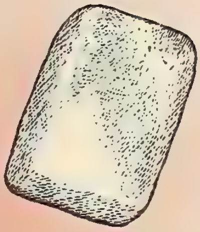

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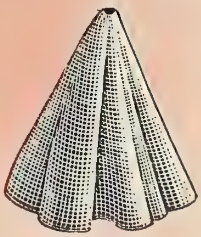

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 33 **January, 1950** **No. 1**

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Contents of MINNESOTA MEDICINE copyrighted by Minnesota State Medical Association, 1950

Entered at the Post Office in Saint Paul as second class mail matter. Accepted for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized July 13, 1918.

MINNESOTA MEDICINE

OFFICIAL JOURNAL OF THE MINNESOTA STATE MEDICAL ASSOCIATION

Published by the Association under the direction of its Editing and Publishing Committee

Office of Minnesota State Medical Association,
493 Lowry Medical Arts Bldg., Saint Paul 2, Minnesota.

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Classified advertising—ten cents a word; minimum charge, $2.00. Remittance should accompany order.

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In the City of Bagdad lived Hakeem, the Wise One, and many people went to him for counsel, which he gave freely to all, asking nothing in return.

There came to him a young man, who had spent much but got little, and said: "Tell me, Wise One, what shall I do to receive the most for that which I spend?"

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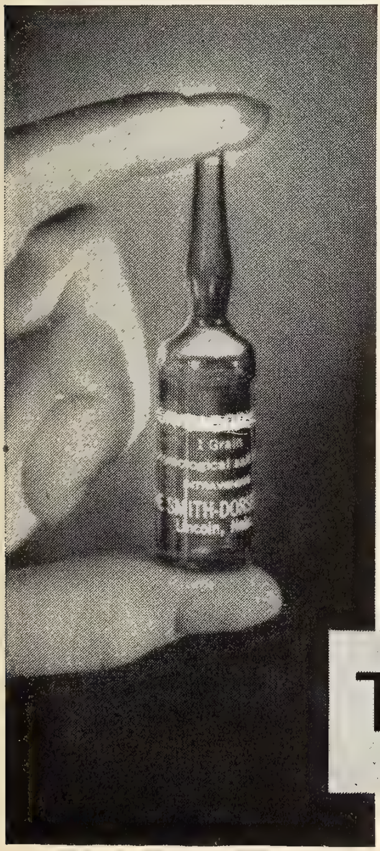

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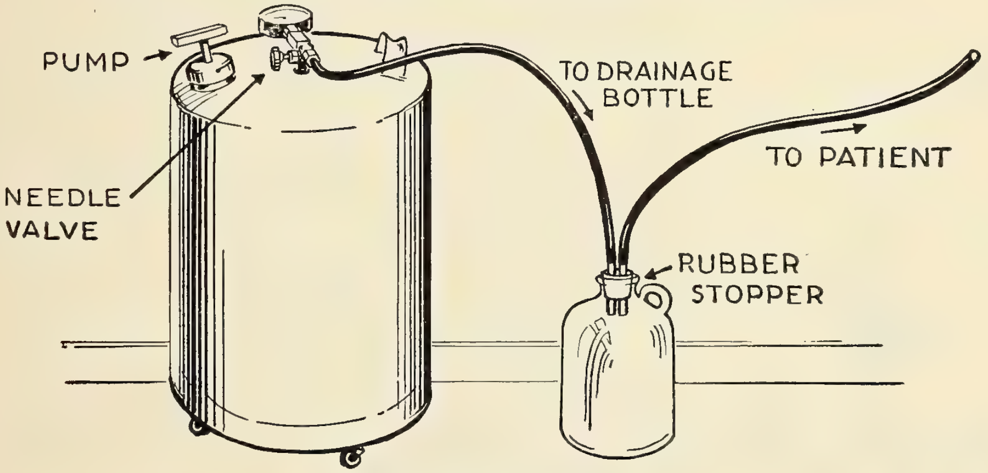

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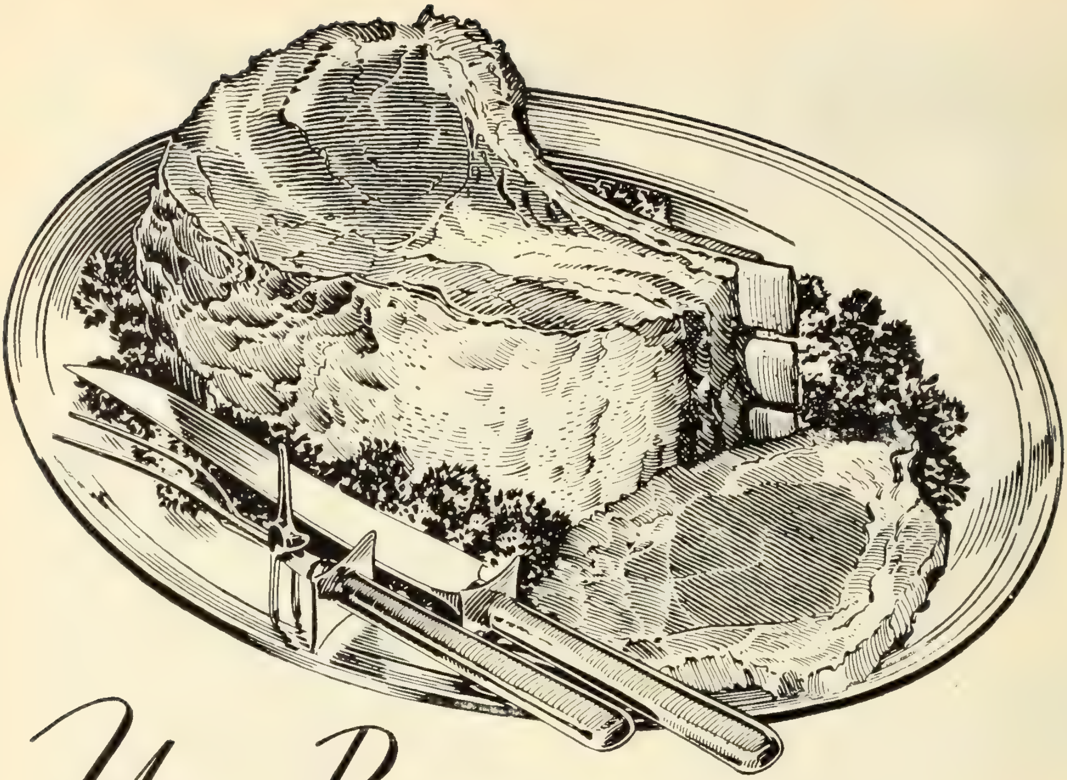

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*McLester, J. S.: Protein Comes Into Its Own, J.A.M.A. *139*:897 (April 2) 1949.

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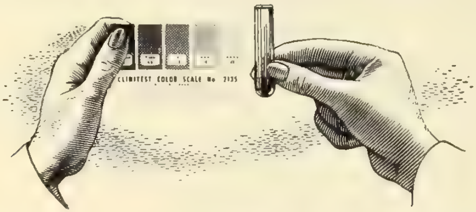

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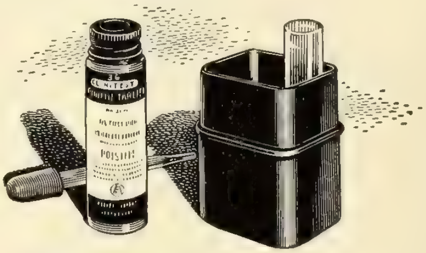

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*Joslin, E. P., Postgrad. Med.: *4*:302 (Oct.) 1948.
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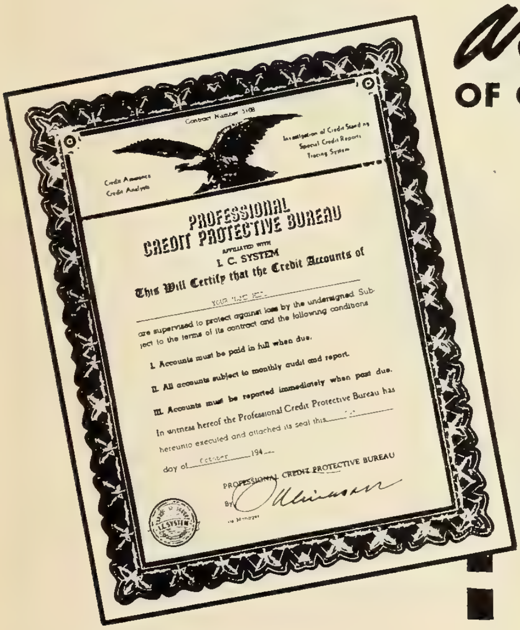

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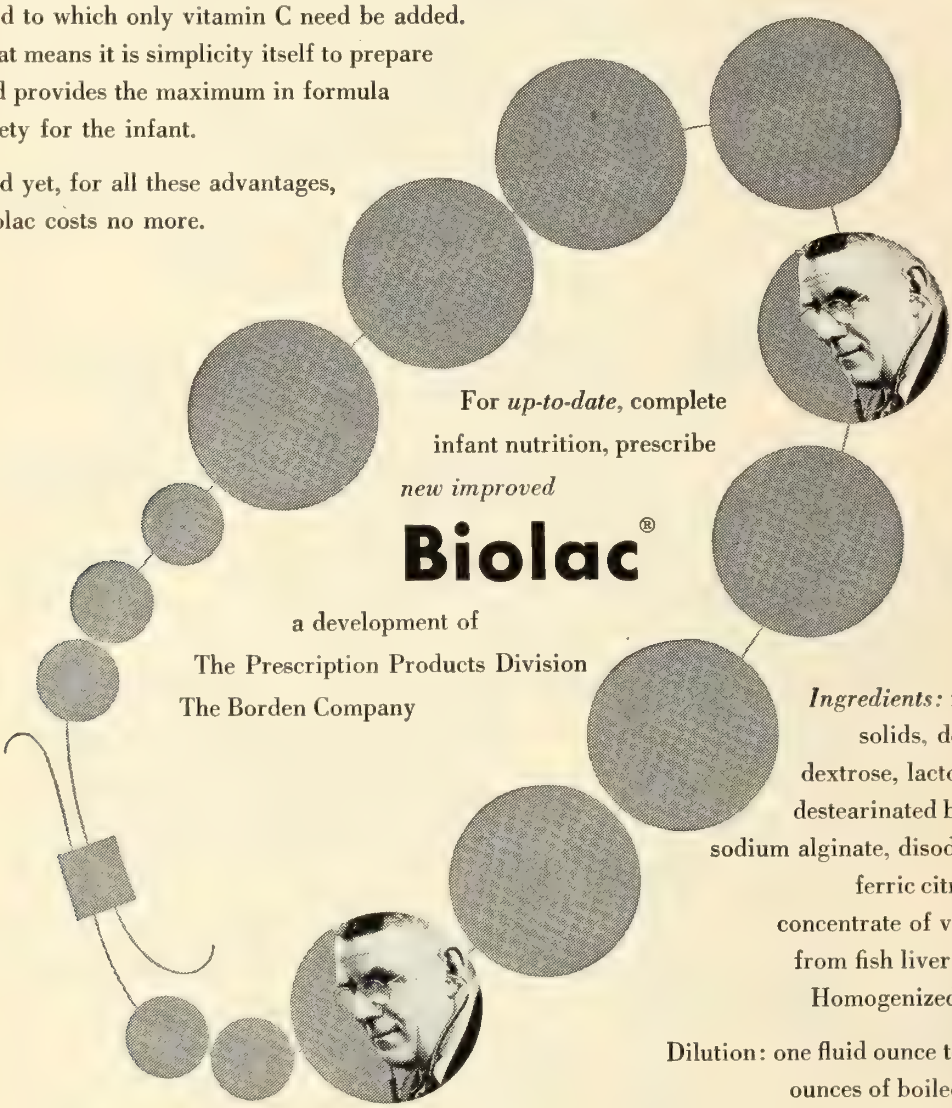

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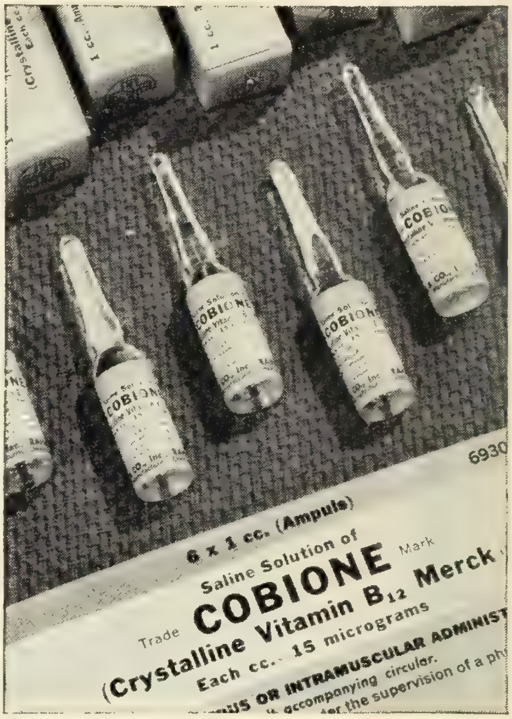
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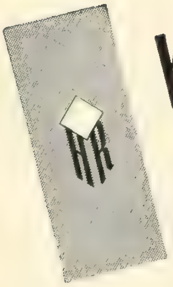

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 33 **January, 1950** **No. 1**

LIFE INSURANCE AND MEDICAL RESEARCH

HARRY E. UNGERLEIDER, M.D.
New York, New York

"THE BEST prophet naturally is the best guesser," wrote Thomas Hobbes a few centuries ago in *The Leviathan*, "and the best guesser, he that is most versed and studied in the matters he guesses at, for he hath most signes to guesse by."

We may adopt this terse quotation from Hobbes as a statement of the primary function of life insurance medicine. Unlike clinical medicine, which deals chiefly with problems of the present, insurance medicine is concerned to a greater degree with the remote future, specifically the life expectancy of the individual, and in this function the physician plays the role of prophet rather than healer. To a greater extent than in clinical medicine, one must necessarily rely more heavily on objective findings than on symptoms, and accordingly "signes to guesse by," to use Hobbes' phrase, assume considerable importance.

Some twenty years ago the Equitable Life Assurance Society of the United States installed a complete diagnostic laboratory as an adjunct to the examination of candidates for life insurance. I believe I can best illustrate our subject, "Life Insurance and Medical Research," by reviewing some of the activities of the diagnostic laboratory over the past two decades, for in this way we can review specific problems rather than discuss generalities.

Very soon after we began employment of the x-ray and electrocardiograph on a fairly broad scale, it became evident that precision apparatus does not necessarily supply precise information. This fallacy, unfortunately, still holds considerable sway in the domain of clinical medicine. The range of normal variation in almost all facets of the cardiovascular examination is very considerable. It became necessary to define standards of normality so that there would be a basis of reference in evaluating particular findings. Data derived from the study of patients in hospitals or private practice have obvious deficiencies in this respect. Observation of large groups of normal individuals studied in connection with applications for life insurance, on the other hand, provides an ideal opportunity to establish normal standards. Important contributions in such questions as standards of body build and blood pressure have been made through the co-operative efforts of the various insurance companies, under the Joint Committee of the Association of Life Insurance Medical Directors and Actuarial Society of America.

We first addressed our attention to the problem of heart size. It has long been an aphorism in cardiology that an enlarged heart is a diseased heart, but standards of heart size in the teleoroentgenogram were lacking until Dr. Charles Clark and I, in 1938, undertook a study of 1,460 individuals to establish standards for the transverse diameter of the heart based on weight and height.[24] In a subsequent study, standards were presented for the area of the frontal cardiac silhouette derived simply on a nomogram chart from measurement of the long and broad cardiac diameter.[25] On the same nomogram chart were like-

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Presented at the Minnesota Society of Internal Medicine, Saint Paul, October 13, 1949.

Dr. Ungerleider is Medical Director of the Equitable Life Assurance Society of the United States.

wise presented the predicted transverse diameter of the heart and transverse diameter of the aortic arch silhouette, based on the Sheridan Index,[19] the utility of which we confirmed in a study of several hundred cases.[25] Employment of this nomogram chart makes possible the accurate detection of cardiac enlargement and aortic abnormality in very simple fashion. Measurements of the transverse diameter and of the frontal cardiac area up to 10 per cent above that predicted for weight and height are within allowable normal limits, but measurements exceeding this limit may be considered to indicate cardiac enlargement, since the distribution curve of normal values shows only a very small percentage or normal measurements above this range. Several clinical studies, such as those of Comeau and White,[3] Kurtz,[18] Gomez,[6] and pathological correlations by Sherman and Ducey,[22] have confirmed the value of these simple measurements of heart size, and these standards have achieved widespread application in clinical medicine as well as in the field of insurance. By way of illustrating the prognostic importance of cardiac enlargement, it may be mentioned that in subjects with an apical systolic murmur, the mortality among those with moderate cardiac hypertrophy is fully twice that of subjects whose hearts are not enlarged. The importance of recognizing cardiac enlargement is therefore clearly evident.

In hypertension, the presence of cardiac hypertrophy likewise is an extremely important prognostic consideration.[26] Serious complications, such as cardiac enlargement and decompensation, and arteriosclerotic changes in the coronary and cerebral vessels, are related more to the duration than to the degree of elevation of the blood pressure.[4] The presence of left ventricular hypertrophy provides a clue to the existence of elevated blood pressure of some duration. X-ray methods are not too satisfactory for the detection of early left ventricular hypertrophy, for hypertrophy, as such, is a matter of increase in thickness of the left ventricular myocardium of a few millimeters, and this change cannot be detected by any roentgenologic method. Accordingly, we undertook a study some years ago on a large group of subject studied in our diagnostic laboratory to establish specific electrocardiographic criteria of left ventricular hypertrophy and to compare the sensitivity of electrocardiographic versus x-ray methods in the detection of hypertrophy.[15] Briefly, we found the following to provide a good index of left ventricular hypertrophy:

1. An increase in voltage of the QRS complex best expressed as a sum of the R wave in lead I and the S wave in lead III. An amplitude of R1 plus S3 of 25 mm. or more is abnormal since 99 per cent of normal individuals with left axis deviation fall within this range. R1 exceeding 15 mm. is similarly indicative of left ventricular hypertrophy even in the absence of left axis deviation. This increase in voltage is the earliest sign of left ventricular hypertrophy.
2. Depression of the ST segment in lead I of any perceptible degree even as slight as one-half millimeter.
3. T wave changes in lead I.

Employing these criteria, it was found that the electrocardiogram provides the most sensitive index of left ventricular hypertrophy, more so than any roentgenologic method. In a mortality study carried out on 424 insurance applicants with hypertension, we found that in subjects with identical blood pressure readings, the mortality rate was twice as high when the electrocardiographic pattern of left ventricular hypertrophy was present as when the electrocardiogram was normal.[5] This study indicates that the stage of hypertensive disease, as determined by electrocardiographic evidence of left ventricular hypertrophy, is an important consideration in the evaluation of life expectancy. It is our practice to take electrocardiograms and teleoroentgenograms of the chest routinely when hypertension is present in candidates for life insurance. These procedures have helped greatly in appraising the selection of subjects with hypertension, and have made possible a more liberal policy in subjects with no evidence of cardiovascular disease, as well as helping to exclude unfavorable risks. Numerous other factors have important bearing on prognosis and life expectancy in hypertension, as we have discussed elsewhere. Particularly may be mentioned the rather benign course of hypertension in women as compared to men, which accords well with clinical experience.

Analysis of the extensive material available in our diagnostic laboratory has helped to establish criteria in evaluating two other frequent and important electrocardiographic abnormalities, i.e., extra systoles which are the most frequent of all arrhythmias, and the Q3 deflection.

In a study of 1,142 cases of extra systoles, several abormalities were found preponderantly in cases of organic heart disease.[27] Among these were: (1) the occurrence of premature beats of multi-focal origin; (2) frequent and persistent premature beats, particularly if they occur successively in short runs interrupting the regular rhythm; (3) a definite increase in the number, or a shower of extra systoles immediately following exercise; (4) occurrence of premature contractions and presence of a rapid heart beat; (5) inversion of the T wave in the regular beat which follows the extra systoles; (6) postextrasystolic pulsus alternans. In fully 58 per cent of subjects with premature beats, no objective evidence of heart disease whatsoever was found. The mere presence of extra systoles, therefore, is not to be regarded adversely, unless further examination discloses evidence of organic heart disease. However, since arrhythmias are frequently a clue to the presence of organic heart disease, it is good insurance medicine just as it is good clinical medicine to carry out a complete cardiovascular survey when an irregularity of a heart beat is detected on physical examination.

Few problems are more vexing to the cardiologist than the expression of a definite opinion of the significance of a Q3 deflection in the electrocardiogram in the absence of other signs of heart disease. A Q3 deflection may be the only residue of previous coronary occlusion, or may occur in perfectly normal individuals with transversely placed hearts; and in insurance selection particularly it is essential to make a clear-cut distinction if possible between these two groups. In a comparative analysis of two large groups, the first normal individuals with a Q3, and the second comprised of individuals on disability due to previous posterior wall infarction, certain signs were found to be helpful in distinguishing the normal from the pathological G3.[20] Any of the following electrocardiographic changes in conjunction with a Q3 denotes it to be of abnormal origin:

1. Absence of the S wave in lead I.
2. The presence of a Q wave in lead II exceeding one millimeter.
3. Flattening of the T wave in lead II below 1 mm. in amplitude.
4. Large amplitude of the Q wave in lead III where the Q wave exceeds 75 per cent of the amplitude of the tallest R wave in the limb lead.
5. A wide Q wave in lead III of at least 0.04 seconds in duration.
6. Deep inversion of the T wave in lead III exceeding 2.5 mm.
7. The presence of a sizable Q3 in individuals less than 5 per cent overweight.

The advent of unipolar limb leads has helped further in clarifying the significance of the Q3 deflection, a Q wave in the unipolar left leg lead indicating that the Q3 is abnormal. Recently, we have found that the presence of a Q wave in a unipolar lead taken over the left lumbar area posteriorly is even more sensitive than the unipolar left leg lead.

Another diagnostic procedure which has helped us greatly in insurance selection has been the roentgenkymogram, which records the pulsations of the heart and great vessels graphically on a single film. Roentgenkymograms are taken on all individuals studied in our laboratory above the age of forty. Abnormal pulsations along the left ventricular contour, of which the most significant is a reversal of pulsation or systolic expansion, occur in the majority of cases with previous attacks of coronary occlusion, and such changes in pulsation frequently are permanent.[13] On numerous occasions, we have found such abnormalities in the roentgenkymogram to provide the only clue to previous infarction, where the electrocardiogram was perfectly normal.

I have entered into a discussion of these diagnostic techniques at some length in order to delineate their sphere of usefulness in insurance selection. It has been necessary for us to establish specific criteria in the evaluation of these various signs. Clinical studies deal, by and large, with the grossly abnormal, whereas in insurance selection, one is confronted constantly with the normal and borderline, and this type of material lends itself very well to establishing standards of normality and abnormality. Apart from clinical applications, to which we shall presently refer, such research has shown its value abundantly in the field of insurance medicine. The more exact application of the various diagnostic procedures in cardiovascular disease has placed insurance selection on a much sounder scientific basis, making possible more equitable action, both to the insurance company and to the insured.

It is an important function of those engaged in insurance medicine to remain constantly abreast of advances in clinical medicine. By way of example may be cited the recent simplification of ballistocardiography by Dock, which promises to make this method a routine part of examination of the heart in clinical cardiology. In our brief experience with one of these instruments loaned to us by Dr. Dock, we have been much impressed by its potentialities. Almost the first case in which we employed it was one with a classic history of angina pectoris where examination otherwise, including an exercise electrocardiogram test of coronary insufficiency, was entirely negative. The ballistocardiogram shows a marked respiratory variation in wave form which has been described in cases of coronary artery disease by Starr[23] and more recently by Brown.[2] There appears to be no doubt that ballistocardiography is by far the most sensitive method for recording the mechanical activity of the heart. Considerable study remains to be done to establish normal standards in various age groups and proper technique for recording the ballistocardiogram. Here, too, with its large source of material in various age groups, insurance medicine can make a substantial contribution of value, not only in its own field but in clinical application as well. The determination of various biological standards is an important contribution by insurance medicine to the field of clinical medicine. The annual proceedings of the Association of Life Insurance Medical Directors of America are replete with contributions by the Medical Departments of the various American life insurance companies in such fields as glucose tolerance, blood pressure, heart murmurs, in addition to studies such as we have described in detail.

Research in insurance medicine cannot be carried out profitably within an ivory tower of statistics. Like other types of research, it must have free access to the various modalities of investigation. Dealing so closely with problems of a clinical nature, a close liaison particularly is necsary with clinical material. Many of our studies have been carried out through the kindness of Dr. William Dock, Professor of Medicine at the Long Island College of Medicine in its Kings County Hospital Division, where there is ample material for clinical study. A full-time Fellow in Medicine is maintained by the Equitable in the Department of Medicine of the Long Island College of Medicine to assist in problems under clinical investigation.

Several studies undertaken to resolve problems in insurance medicine have led us inevitably into the domain of clinical medicine. Thus, recognition of the inadequacy of casual blood pressure readings in life insurance examinations among subjects with elevated blood pressure led to the evolution of very simple pressor and depressor tests. The breath-holding test originally described by Ayman,[1] and the hyperventilation plus carotid sinus pressure test, both of which we have described in detail elsewhere,[7] were found to correspond very closely with the cold pressor and the sodium amytal depressor tests, respectively. Employment of these very simple procedures makes it possible to determine the ceiling and basal levels of blood pressure within a very few minutes, and lends itself very well to routine office use in clinical practice in studying subjects with hypertension. Another pertinent illustration was an analysis of several thousand arterial sphygmograms recorded in our diagnostic laboratory which led to a study of the mechanism of pulsus alternans.[8] In the fields of electrocardiography and roentgenology of the heart, we have found constantly that our activities have extended into the clinical sphere. We have summarized our various observations on these subjects in the section on roentgenology of the heart in Myers and McKinlay's book[21] and in an article entitled "Newer Aspects of Clinical Electrocardiography" which appeared last year in the *New York State Journal of Medicine*.[9]

As we have already mentioned, research frequently extends beyond the horizons within which it is originally conceived. While our own scope of activities has been primarily concerned with questions of prognosis and diagnosis, which relate naturally to clinical problems, our work has carried us into investigations of cardiac physiology, and into therapy as well. Thus, employing the technique of roentgenkymography, to which we have already referred, simultaneously with diodrast contrast visualization of the heart chambers, we have been enabled to make observations on the dynamics of the interventricular septum.[10] We have shown that far from being a passive partition between the two ventricles, the interventricular septum plays a very significant dynamic rôle as an integral part of the left ventricle in systolic ejection. In another physiololgical study, the principle of specific dynamic action was applied as a means of augmenting peripheral blood flow.[11] Glycine was used to augment heat production in the liver which was dissipated by an increase in blood flow to the extremities. These observations have been confirmed recently by Gustafson and his colleagues of the University of Michigan[18] who have indicated from extensive and extended experience with this simple amino acid that it is "a definite adjunct to the conservative treatment of peripheral vascular insufficiency."

Some of our studies have been directly in the field of therapy. For some time, we have been engaged in a project on the chemotherapy of tuberculosis. A new sulfone compound synthesized in our chemical laboratory has shown considerable promise in *in vitro* studies, and in experimental mouse tuberculosis experiments carried out in collaboration with Dr. Réné Dubos at the Rockefeller Institute for Medical Research.[12] More recently, in another series of tests, this work has been confirmed both in the mouse and in hamsters, and the drug was found to possess antituberculosis activity approximately twice that of para-aminosalicylic acid, and to be completely lacking in toxicity, both in acute and chronic toxicity studies. A study of its efficacy in man is now being undertaken.

Currently, we are actively engaged in studies on various aspects of arteriosclerosis. Some of you may be acquainted with our survey of arteriosclerosis which appeared in the *American Journal of Medicine* some months ago.[14] In a study we recently carried out on the significance of blood cholesterol, it was found that significantly less arteriosclerosis occurred in the subjects with a low level of blood cholesterol compared to those with so-called normal levels of cholesterol and with hypercholesterolemia.[28] These observations suggest that the so-called normal cholesterol is, in reality, a high cholesterol, and that the cholesterol level of the average American population is of such an order as to predispose to the development of arteriosclerosis. One of the difficulties in cholesterol studies has been obviated by the introduction by Kendall and his colleagues of a highly accurate method for determining its concentration in the serum,[17] a technique we are now employing in our laboratory. The prevention of arteriosclerosis is beyond question the Number 1 public health problem in the United States today. It will be of immense importance to establish whether, as our preliminary studies suggest, low levels of blood cholesterol confer protection against the development of arteriosclerosis, and if this is so, to find simple and effective means to maintain a low level of blood cholesterol.

I have tried to illustrate the subject of this talk on Life Insurance and Medical Research, by a description of our own research program at the Equitable Life Assurance Society of the United States, rather than to deal with this subject in generalities. In our own activities, we have had occasion to exploit the statistical material which is uniquely available to life insurance organizations, employing in our various studies data on ordinary life insurance and mortality experience, subjects receiving disability benefits, and our large group insurance coverage embracing large segments of the population in various industries. In addition, we have constantly utilized the facilities of our own diagnostic laboratory and chemical laboratory. During the war, our diagnostic laboratory served as a cardiac consultation station for the Naval Recruiting Bureau.[29] In other studies, we have employed the facilities of our hospital which provides medical service to our several thousand personnel. It has been our good fortune to maintain a close clinical liaison in our research program. Such varied facets of operation are very necessary, for research cannot be confined profitably within particular precincts, since it frequently leads in unexpected directions.

It must be apparent that life insurance has a very substantial interest in medical research and progress, for beyond the specific problems of insurance medicine, improvement in the health and longevity of the population is of vital concern to insurance. The need for fostering research has been recognized by the life insurance companies of the United States in the creation, in 1945, as a co-operative enterprise among the various companies, of the Life Insurance Medical Research Fund. This Fund makes available some two-thirds of a million dollars annually for fundamental research in cardiovascular disease. Under the guidance of a council composed of outstanding figures in American medicine, its work already has proven most fruitful. Several hundred publications have appeared regarding work which was aided by the Fund, and up to 1948 Grants-in-Aid had been given to 165 research programs and seventy-one Research Fellowships had been awarded. It is expected that this project will prove increasingly rewarding in its objectives of stimulating research in fundamental aspects of rheumatic fever, hypertension, arteriosclerosis and other cardiovascular disorders. The Equitable as well as other insurance companies has actively supported the programs of such organizations as the American Heart Association. As you can see, our Society has had a program of research for many years. The insurance companies should, and are, contributing to the sum total of our medical knowledge in an increasing degree. There is no doubt in my mind that other companies are making contributions similar to those outlined. Scientific knowledge, from whatever source, should be welcomed by the medical profession. We in insurance medicine feel that we are not apart from those who are actively engaged in clinical medicine. Our problems are the same, and although our approach may be different, the common goal we seek is the prolongation of human life.

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LIVING CONDITIONS AND TUBERCULOSIS

The public welfare officer has long known that tuberculosis differs from other diseases affecting his clients because of the problem created in the patient's family even after the patient is out of the home. The worse the living conditions, the greater is the danger of infection, and the public welfare officer's clients are frequently those representing the worst living conditions in the community. The health officer and his nurses will watch the contact cases. It is their responsibility to see that regular and thorough examinations are given and that such families are trained in health education. These are the families that should have good housing, more adequate food than families in which there has been no tuberculosis, and no serious overwork or overstrain. Here the public welfare officer has a traditional opportunity. No one can assure good housing to any needy family today, tuberculous or nontuberculous, but the goal of decent housing should never be lost sight of, and it should be attained for the families of the tuberculous whenever possible. Adequate food can be supplied, and with sufficient economic security the members of the family should be saved from serious overwork. Ruth Taylor, *Nat. Tuberc. A. Bull.*, Oct., 1949.

AN APPRAISAL OF MAJOR SURGERY IN A SMALL HOSPITAL

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A REVIEW of 1000 consecutive major surgical operations, performed by the author and his colleagues of the Austin Clinic in the St. Olaf Hospital, Austin, Minnesota, has been undertaken as a background for the appraisal of general surgery in a small, non-metropolitan hospital. It is felt that such an appraisal is timely for several reasons:

1. It should be of interest to other physicians who practice surgery, either part time or as a specialty, in small communities.

2. It offers factual evidence to challenge the public claims of politicians who would have us believe that medical practice in predominantly rural areas, such as ours, is universally substandard.

3. It may be useful in re-evaluating training programs for general surgeons, to ascertain whether or not such surgeons are being adequately trained to cope with all the problems of general surgery, including traumatic surgery and the surgical subspecialties, as they are necessarily encountered in hospitals in non-metropolitan areas.

A complete classification of the 1000 operations in this survey is given in Table I. The selection of operations for classification as "major" procedures has been entirely arbitrary. Multiple-stage operations have been listed only once, and combined operations have been listed only under the title of the primary procedure.

There were twenty-one hospital deaths in this series. This operative mortality of 2.1 per cent compares favorably with reports from other general hospitals[4] and is an improvement over the mortality rate of 3.9 per cent in 785 cases reported by the author in 1942.[1] A detailed analysis of the deaths in this series is given in Table II. There were no deaths attributable directly to the anesthetic. In two patients, technical operative factors were directly or indirectly responsible for the deaths: in one case there was partial obstruction, although no leakage, at the site of an end-to-end anastomosis of the ileum; and in another case a fairly large common-duct stone was inadvertently overlooked in performing a choledochostomy on a critically ill patient. Surgical shock was listed as the primary cause of death in three patients. In each instance the age of the patient, the nature of his illness, or his cardiovascular status prior to operation influenced the unfavorable postoperative course, and in no case was the use of whole blood transfusions or other supportive therapy neglected. Pulmonary embolism, proven or strongly suspected in four patients who died, and present as a serious nonfatal postoperative complication in three other patients, has been one of our greatest

TABLE I. ONE THOUSAND CONSECUTIVE MAJOR SURGICAL OPERATIONS IN A SMALL NON-METROPOLITAN HOSPITAL

Operation	Number of Operations
Head-Neck-Faciomaxillary Surgery	
Craniotomy (Subdural hematoma, extradural hematoma and depressed skull fractures)	4
Thyroidectomy	14
Breast and Chest Surgery	
Mastectomy, radical	17
Thoracotomy (Lung abscess and empyema)	5
Subdiaphragmatic abscess, I & D of	1
Lobectomy, pulmonary	1
Gastrointestinal and General Abdominal Surgery	
Gastric resection	15
Pyloroplasty	11
Gastroenterostomy	3
Perforated peptic ulcer, closure of	2
Intestinal resection, large and small bowel	21
Cecostomy	1
Colostomy	8
Rectal perforation, closure of	1
Appendectomy (including perforative appendicitis)	267
Appendectomy and Meckel's diverticulectomy	5
Appendectomy and excision of urachus	2
Appendiceal abscess, drainage of	7
Abdominal exploration	6
Intestinal obstruction, simple, release of	6
Herniorrhaphy, elective	162
Herniorrhaphy, strangulated	15
Herniorrhaphy, strangulated, with bowel resection	2
Splenectomy	4
Fixation of recurrent prolapsed rectum	1
Duodenal diverticulectomy	1
Intussusception and Meckel's diverticulectomy	1
Biliary Tract and Liver Surgery	
Liver, closure of traumatic rupture of	3
Cholecystostomy	4
Cholecystectomy	90
Cholecystectomy and choledochostomy	30
Choledochostomy	6
Choledocho-duodenostomy	1
Gynecological Surgery	
Myomectomy	1
Perforated uterus, closure of	1
Hysterectomy, abdominal	57
Hysterectomy, vaginal	25
Perineorrhaphy and cystocele repair	36
Salpingo-oöphorectomy and oöphorectomy	46
Uterine suspension	13
Cesarean section	17
Vulvectomy, radical	3
Genito-Urinary Surgery	
Nephrectomy and nephroureterectomy	2
Plastic operation, kidney pelvis	2
Uretero- and pyelolithotomy	2
Uretero-vesical anastomosis	1
Cystectomy	1
Penectomy, radical	1
Orthopedic and Traumatic Surgery	
Open reduction, major fractures	68
Amputations, major	5
Bone grafts, major	2
Total	1000

Presented at the annual meeting of the Southern Minnesota Medical Association, Red Wing, Minnesota, September 12, 1949.

worries. Early ambulation—and that means the day of or the day following operation—has not greatly influenced the incidence of this complication for us. Recently we have instituted the routine use of dicumarol therapy postoperatively in all major surgical cases except those where the nature of the procedure is contraindicative.

TABLE II. OPERATIVE DEATHS IN 1000 CONSECUTIVE MAJOR OPERATIONS

Patient Age	Operative Diagnosis	Operation	Primary Cause of Death	Interval
A.F. 68	Fracture neck of femur	Internal fixation	Pulmonary embolus	15 days
A.M. 86	Fracture neck of femur	Internal fixation	Coronary occlusion	22 days
C.B. 66	Fracture neck of femur	Internal fixation	Bronchopneumonia and Parkinson's Disease	8 days
B.C. 65	Fracture neck of femur	Internal fixation	Arteriosclerotic Parkinsonism	2 months
L.U. 89	Intertrochanteric fracture of femur	Open reduction	Shock	6 hours
L.R. 79	Intertrochanteric fracture of femur	Open reduction	Cerebral thrombosis	5 days
J.S. 58	Carcinoma of stomach	Exploration	Carcinomatosis	23 days
C.K. 55	Carcinoma of stomach -acute perforation	Gastric resection	Shock-aspiration of vomitus	6 hours
G.H. 63	Carcinoma of stomach -acute perforation	Gastric resection	*Pulmonary embolus	12 days
O.L. 75	Carcinoma of stomach	Gastric resection	Acute auricular fibrillation-shock	18 hours
L.J. 32	Chronic duodenal ulcer with massive hemorrhage common duct obstruction	Gastric resection and choledochostomy	*Pulmonary embolus	10 days
A.K. 42	Cholelithiasis	Cholecystectomy	Pulmonary embolus	8 days
J.W. 60	Cholelithiasis-common duct calculus	Cholecystectomy -choledochostomy	Suppurative cholangitis secondary to residual common duct calculus	6 weeks
G.N. 83	Acute cholecystitis with perforation-common duct calculus	Cholecystectomy -choledochostomy	Bronchopneumonia	27 days
A.M. 49	Chronic portal cirrhosis	Exploration	Esophageal hemorrhage	6 days
L.F. 67	Ulcerated duodenal diverticulum with massive hemorrhage	Diverticulectomy	Shock-? acute cardiac failure	1 hour
J.M. 62	Strangulated hernia-gangrene and perforation of bowel	Small bowel resection	Peritonitis	2 days
E.W. 60	Acute intestinal obstruction -gangrene of ileum	Small bowel resection	*Mesenteric thrombosis -partial obstruction at anastamosis	14 days
J.G. 78	Incarcerated hernia	Herniorrhaphy	Bronchopneumonia and Parkinson's Disease	10 days
P.G. 75	Carcinoma of sigmoid -complete obstruction	Cecostomy	*Carcinomatosis	6 days
L.A. 73	Arteriosclerotic gangrene bilateral, ? embolic	Second low-thigh amputation	?Pulmonary embolus auricular fibrillation	in OR

*Indicates autopsy.

Surgery in the Aged

A special survey has been made of the seventy-eight major operations performed on the patients seventy years of age and over in this series. This survey is presented in Table III. There were eight hospital deaths in this group, or a mortality rate of 10.3 per cent. As is to be expected, cardiovascular complications were the primary cause of death in the majority of the eight elderly patients who did not survive operation.

Major operations must frequently be undertaken in aged patients in spite of the increased risks in the older age group. We believe that such patients should be treated in their home communities, whenever possible, as elderly individuals do not adjust well to environmental changes and often do not tolerate or cannot be persuaded to accept transfer to distant medical centers.

No specific sociological survey has been made of this group, although such a study might prove interesting, but it is known that many of these elderly patients have been restored to comfortable and useful activity. Very few are dependent, socially useless wards of the state. One man, now seventy-nine years of age, who has had two bowel resections for intestinal obstruction during the past ten years, is active in business and apparently more prosperous than ever before in his career. A woman, now approaching ninety years of age, who fortunately is financially independent, is also physically independent, active, and free of pain one year after an internal fixation of a fracture of the neck of the femur. When last examined one year after a subtotal gastrectomy for an early carcinoma of the pylorus, a woman of eighty-six years was doing her own housework and complaining only of minimal lumbar arthritic pains which were aggravated by working in her garden! Several survivors in this group are farmers who still actively participate in the management of their farms. Even a few such recoveries—and the cases cited above are not isolated examples—justify a conscientious effort on the part of the surgeon to prolong life and make it more pleasant for those patients who have outlived their allotted three-score years and ten.

TABLE III. SURGERY IN THE AGED

Operative Procedure	Number of Cases and Deaths by Age Groups			Total
	Ages 70-80	Ages 80-90	Over 90	
Appendectomy, perforated appendix	2	1	0	3
Amputation, low thigh	2(1)	0	0	2(1)
Cecostomy	1(1)	0	0	1(1)
Cholecystectomy	4	0	0	4
Cholecystectomy-choledochostomy	2	1(1)	0	3(1)
Choledochojejunostomy	1	0	0	1
Cystectomy and ureterectomy, partial	0	1	0	1
Colon resection	2	1	0	3
Exploratory, abdominal	1	0	0	1
Fracture, femur, internal fixation	9(1)	9(2)	1	19(3)
Fracture, tibia, open reduction	1	0	0	1
Gastric resection	2(1)	1	0	3(1)
Gastroenterostomy	2	0	0	2
Herniorrhaphy, elective	9	0	0	9
Herniorrhaphy, strangulated	5(1)	0	1	6(1)
Herniorrhaphy, with bowel resection	0	1	0	1
Intestinal obstruction, release of	1	0	0	1
Intestinal obstruction, with resection	1	0	0	1
Mastectomy, radical	3	1	0	4
Nephrectomy	1	0	0	1
Ovarian carcinoma, excision of	1	0	0	1
Penectomy, radical	1	0	0	1
Vaginal hysterectomy and plastic	9	0	0	9
Totals	60(5)	16(3)	2	78(8)

Note: Hospital deaths are denoted by ( ).
Mortality rate—10.3%.

Pediatric Surgery

An analysis of the major surgery among the infants and children under twelve years of age in this series is presented in Table IV. There were no operative deaths in this group of 134 patients. It is interesting to note that fifty-one of these children were from strictly rural areas. The excellent preoperative diagnosis and care of these children by the referring general practitioner is largely responsible for the favorable operative record in this group.

TABLE IV. SURGERY IN INFANTS AND CHILDREN

Appendectomy, simple	59
Appendectomy and Meckel's diverticulectomy	2
Appendectomy and excision of urachus	1
Appendectomy, perforative appendicitis	10
Duodenojejunostomy (congenital atresia)	1
Decompression, acute subdural hematoma	1
Fracture, skull, depressed, elevation of	2
Fracture, long bones, open reduction of	4
Herniorrhaphy, elective	32
Herniorrhaphy, incarcerated or strangulated	5
Intussusception and Meckel's diverticulectomy	1
Liver, suture of traumatic laceration	3
Pyloroplasty, congenital pyloric stenosis	11
Splenectomy	1
Uretero-pelvic stricture, plastic repair of	1
Total	134

Ladd and Gross[2] have demonstrated that particular care is required in the surgical management of the infant and small child. The general surgeon who must operate upon these tiny patients should make every effort to prepare himself specifically for the task. A certain temperamental, as well as a technical, readjustment must be made in the change from adult to pediatric surgery, and more careful attention must be given to altered physiology.

Surgery in Appendicitis

A consideration of some of the various operations and specific surgical diseases covered by this survey is of interest. The most common disease requiring surgical treatment is appendicitis. In this series, there were 281 operations for appendicitis, exclusive of incidental appendectomies performed during the course of other operations. There have now been 503 consecutive operations for appendicitis, including all stages of this disease, performed during the time that the author has been the surgeon for the Austin Clinic. There have been no deaths in this series of 503 operations.

A discussion of the surgical management of appendicitis is not within the scope of this paper, but a few brief comments may be in order.

1. We do not practice the policy of "when in doubt, operate." There is no question of the fact that acute appendicitis should be treated by early operation, but this does not license the surgeon to operate indiscriminately on all patients with right lower abdominal pain. The majority of cases of acute appendicitis can be accurately diag-

nosed preoperatively. In doubtful cases, re-examination after the administration of a small dose of morphine may aid in the diagnosis. In other cases, we have not hesitated to observe the patient under hospital management and supportive therapy for periods up to twenty-four hours. We must frankly admit that operation has thus been delayed in a few cases of acute appendicitis, although without any apparent ill-effects, and that an occasional patient with a mild acute appendicitis has recovered without the benefits of operation. However, this policy has saved us the embarrassment on many occasions of performing an unnecessary or even a harmful operation.

2. In the presence of local or general peritonitis of appendiceal origin, it has been our policy to perform an appendectomy and drain the peritoneal cavity with a soft Penrose drain. An exception is made in those cases where a large, localized appendiceal abscess is present when the patient is first examined. Under such circumstances, the abscess is drained—preferably through the rectum if it points in the pelvis—and the patient is advised to have an elective appendectomy in three to four weeks. We do *not* subscribe to the so-called expectant treatment of perforative appendicitis, although a few hours delay for the preoperative preparation of a toxic or dehydrated patient is usually advantageous.

Surgery of the Gall Bladder and Biliary Tract

Disease of the gall bladder and biliary tract is of special interest to surgeons. In this series there were 131 operations on the gall bladder and bile ducts. The three deaths in these 131 operations give an operative mortality of 2.3 per cent for surgery of the biliary tract. We consider this mortality rate too high, and can justify it only by a critical review of the three deaths, as reported in Table II, and by the fact that the statistical results in our biliary surgery prior to this series have been much more favorable.

It will be noted that we have explored the common duct in 28 per cent of the operations on the biliary tract. Definitely positive findings, chiefly the presence of calculi, are encountered in about half of the cases in which the common duct is explored. The frequency with which we explore the common duct is fully justified by the fact that many common-duct calculi are thereby detected which could have been easily overlooked. We have so often discovered "silent" common-duct stones—as many as forty-four within the duct in one case—that we now fully appreciate the stand that Lahey[3] has taken for years in urging that the common and hepatic ducts be explored in up to 50 per cent of all gall-bladder operations. The procedure itself, in the hands of an experienced surgeon, does not increase the mortality and morbidity of biliary tract surgery, and adds only a few days to the patient's total recovery period.

The Surgical Treatment of Hernia

Hernia is another affliction which is of never-ending surgical interest. It is a common ailment, which in this series was encountered in 178 of 1000 major operations. The fact that the recurrence rate after hernia operations remains high, even in the hands of otherwise competent surgeons, is a particular challenge to the general surgeon in a small community to continually improve his results. Large clinics can readily absorb the embarrassment of an occasional recurrence after herniorrhaphy, but the individual surgeon in a small community must have a hernia recurrence rate which approaches nil, an accomplishment which is more than theoretically possible.

We have found one procedure helpful in evaluating the technical efficiency of our hernia repairs, a procedure which we have never seen described in the surgical literature: Under local anesthesia, which is our anesthetic of choice in primary hernia repairs, the patient is instructed to give a forceful cough during various stages of the operation. The strength of the repair can thus be demonstrated, and if stainless steel wire sutures are employed, one can be reasonably certain that the repair will remain firm until tissue healing is complete. With this assurance of a firm repair of the hernia, we have no misgivings in urging early ambulation in our cases. The patient is allowed to walk to the bathroom at any time after the operation, thus making postoperative catheterization a rare necessity. The average patient is discharged from the hospital on the third to fifth postoperative day. Sedentary occupations may be resumed in ten days, light work in two to three weeks, and unlimited activity is permitted after four weeks. We have had no known recurrences in the herniorrhaphies reported in this series.

Gastrointestinal Surgery

There are two aspects of gastrointestinal surgery that we would like to mention briefly, although with some hesitation.

1. We have adopted, during the past two years, a modification of the non-operative treatment of acute perforated peptic ulcer originally described by British surgeons. Our experience has been limited to ten cases thus far, so that we cannot speak authoritatively nor can we urge others to follow our example. However, we have been so favorably impressed by the clinical course of these patients that we are inclined to believe that this method of treatment may prove superior to the operative treatment, at least in selected cases. We have had no deaths in our cases, and in each incidence the recovery has been much smoother than we would have anticipated with the operative method of treatment. One word of caution should be injected: this non-operative treatment is strictly a surgical problem, and it demands the careful personal supervision of the surgeon.

2. In re-establishing continuity between segments of the intestinal tract, including the colon, we have used a so-called "open" type of anastomosis in all cases with good results. This fact is mentioned because numerous reports from various surgeons with wide experience advocate so many different types of "closed" anastomoses and multiple-stage operations that the general surgeon with a limited volume of gastrointestinal surgery is left in a quandary trying to decide which technique to adopt. Again we cannot speak with authority, because of our limited experience in comparison with statistical reports from large clinics, but we agree with those surgeons who contend that sepsis and peritonitis usually result from a technically poor suture line and not from the minimal contamination that theoretically occurs with an open anastomosis. We believe that the average surgeon can perform a more secure anastomosis, free from the danger of leakage, by an "open" technique.

Gynecologic Surgery

Gynecological operations accounted for approximately one in five of all major operations in this surgery. This high incidence of gynecologic surgical problems makes it essential that the general surgeon who practices in a small community, where specialists in gynecologic surgery are not always available, be well trained in this subspecialty. Training programs that omit such training for the general surgeon are to be condemned. It also seems to us that the man who is trained as a specialist in gynecologic surgery should have an adequate background of general surgery, as the arbitrary division of the abdomen of the female at the brim of the pelvis is not always respected by intra-abdominal disease processes.

There were no deaths in the 199 gynecological operations in this series, and we now have a total of 104 consecutive hysterectomies without a death.

Traumatic Surgery

The management of injuries is another aspect of general surgery that demands our consideration. In non-metropolitan areas, the general practitioner and the general surgeon are responsible for the treatment of injuries of all types. Automobile, farm and industrial accidents account for our more serious injuries. These often tax the skill of the surgeon to the utmost, and quite often he finds himself becoming involved, of necessity, in surgical problems that require a fundamental knowledge of the various surgical subspecialties. The treatment of compound fractures, primary tendon and nerve suture, and the care of internal visceral injuries are commonplace in a general surgical practice in a small community. A great variety of fractures of the long bones and crushing fractures of the vertebrae are encountered. Intracranial injuries are frequent problems, and an occasional depressed skull fracture or a localized intracranial hemorrhage will require the general surgeon to perform an emergency cranial operation. Since neurosurgeons, orthopedists and other such specialists are not universally available, general surgeons must be trained who are capable of administering skilled early definitive treatment to injuries of all types.

Conclusion

A survey of 1000 consecutive major surgical operations in a small non-metropolitan hospital has been presented, and an appraisal made of the various aspects of general surgery in a small community. Emphasis has been placed upon the necessity of maintaining training programs that will adequately prepare surgeons for the broader scope of general surgery as it is encountered in areas away from metropolitan medical centers.

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MATERNAL AND INFANT MORTALITY STUDY IN A SMALL GENERAL HOSPITAL

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MEDICAL LITERATURE contains many reports of maternal and infant mortality studies. A large majority of the published studies come from large hospitals and clinics in metropolitan areas. There is a dearth of published material from the small general hospitals in the rural areas of our country.

Concurrent with the trend toward socialization of medical practice, maternal and infant care comes into sharp focus. Published figures of maternal and infant mortality are no longer the sole property of medical literature, for they now appear in our morning paper, in reports to the President, and in the proceedings of our legislative bodies.

A personal interest in determining the quality of obstetrical, infant, and premature infant care provided by private practicing physicians in a small general hospital provided the stimulus for this study. A comparison with published results from other hospitals in representative sections of our country is included.

This study is based on the hospital records of 2,519 consecutive deliveries in the St. Olaf Hospital, Austin, Minnesota, during the years 1946, 1947, and 1948. This general hospital serves the city of Austin, with a population of about 30,000, and a large surrounding rural area, making a total population of about 50,000. The population is almost entirely white. The hospital has a bed capacity of 105 with twenty-five bassinets. The average adult occupancy for the three-year period of this study was 76 per cent.

The hospital is staffed by thirty-three physicians, twenty-one of whom practice obstetrics. During the years studied, all of the work was done by general practitioners. There are no interns or residents in the hospital, and prior to January 1, 1949, there was no obstetrical specialist on the staff.

TABLE I. MATERNAL AND INFANT MORTALITY

Source	Total Deliveries	Maternal Deaths	Maternal Mortality
St. Olaf Hospital 1946-1948	2,519	1	0.039%
U. S. Dept. of Labor			0.306%
Newberger, Illinois State Statistics, 1943			0.27 %
Connor (Wenatchee, Washington, 1944-1946)	2,500		0.20 %

TABLE II. STILLBORN INFANT MORTALITY

Hospital	Total No. Live Births	No. Stillbirths	Rate/1000 Live Births
St. Olaf Hospital 1946-1948	2490	40	16.06
Philadelphia Lying-In	1009	25	24.8
Gaston Hospital, Memphis	355	20	56.3

In this group of 2,519 deliveries there was one maternal death, a mortality rate of 0.039 per cent (Table I). This maternal mortality figure compares most favorably with other published figures. Newberger,[5] in an analysis of maternal mortality in the state of Illinois during 1943, found a mortality rate of 0.27 per cent. The Department of Labor,[7] in a survey of the United States for the year 1940, found a maternal mortality of 0.376 per cent. Connor,[1] in a comparable study, reports a mortality of 0.20 per cent among mothers delivered in two small general hospitals in the state of Washington.

The cause of death in the one fatality in the St. Olaf Hospital study was acute yellow atrophy of the liver. It is an interesting and significant commentary that there were no deaths nor serious complications due to puerperal sepsis or toxemia in the three years studied. This, considered with the very low maternal mortality figure, speaks favorably for the obstetrical care afforded the patient by the general practitioner in the small general hospital in this rural area.

The infant mortality rate in this study was found to be favorable in comparison with other reports. There was a total of forty stillborn infants in the three-year study, with a stillborn infant mortality rate of 16.06 per 1000 live births (Table II). Hingson et al[3] report a stillborn infant mortality rate of 24.8 per 1000 live births. Connor reports a stillborn mortality rate of 1.12 per cent, but uses his figures in relation to total babies born, instead of in relation to live births, as is the customary procedure in statistical analyses. Using similar computation, the present study reveals a stillborn mortality rate of 1.56 per cent of total babies born. In a study of caudal anesthesia

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Presented at the annual meeting of the Southern Minnesota Medical Association, Red Wing, Minnesota, September 12, 1949.

TABLE III. NEONATAL INFANT MORTALITY

Source	Total No. Live Births	No. of Deaths	Rate 1000 Live Births
St. Olaf Hospital 1946-1948	2490	54	21.7
Philadelphia Lying-In 1942-1945	1009	21	20.8
Gaston Hospital 1946	355	6	16.9
Minn. Dept. of Pub. Health—1947			28.6
U. S. Dept. of Pub. Health—1947			34.0

TABLE IV. NEONATAL INFANT MORTALITY CAUSE OF DEATH

Cause	St. Olaf Hospital
Prematurity	26
Atelectasis	11
Pneumonia	5
Congenital deformity	3
Erythroblastosis fetalis (fetal edema)	1
Anemia of newborn (not Rh factor)	1
Intracranial hemorrhage	1
Unclassified	6
Total neonatal deaths	54

TABLE V. PREMATURE MORTALITY

				Fatality Rate				
Period	No. of Live Births	No. Weighing 2500 gm. or Less	Incidence of Premature Births	Less than 1000 gm. 2-3	1000-1500 gm. 3-5	1501-2000 gm. 4-6	2001-2500 gm. 5-8	Total 2500 gm. or-Less 5-8
St. Olaf Hospital 1946-1948	2490	148	5.94	70.6	64.7	25.7	8.8	16.0
Long Island College Hospital—1940-1945	9084	637	7.0	92.0	41.4	17.3	4.6	16.3

in obstetrics, Hingson reports a remarkable stillborn mortality rate of 9.1 per 1000 live births in one series. However, a control group using general anesthesia at the same hospital had a stillborn mortality rate of 24.8 per 1000 live births. In the St. Olaf Hospital study, general anesthesia was universally used during the second stage of labor. Caudal anesthesia was not used in any of the deliveries during the three-year period of this study.

There was a total of fifty-four neonatal deaths in the St. Olaf Hospital Study, giving a neonatal infant mortality of 21.7 per 1000 live births (Table III). Hingson reports a neonatal infant mortality of 20.8 per 1000 live births. The Minnesota Department of Health reports a neonatal infant mortality in 1947 of 28.6 per 1000 live births. The United States Department of Health in the same year reports a neonatal infant mortality of 34.0 per 1000 live births for the entire United States. An analysis of the cause of death in the neonatal group in this study is given in Table IV.

Of the neonatal deaths, forty (74.0 per cent) occurred in premature infants. By definition, a premature infant is any infant born alive who weighs 2,500 grams (5 pounds 8 ounces) or less, whose heart beats or who moves. This definition is accepted by the American Academy of Pediatrics.[6] In this study, the premature mortality rate for the three-day period was 16.0 per 1000 live births (Table V). Koch et al[4] report a premature mortality rate of 16.3 per 1000 live births in a study of 9,084 live births at the Long Island College Hospital from 1940 to 1945. Their premature mortality rate of 16.3 per 1000 live births was achieved following a concerted attempt to improve the premature care in the Long Island College Hospital. A previous study in the Long Island College Hospital, covering the period 1924-1940, had revealed a premature mortality rate of 28.4 per 1000 live births. A tabulation of the premature fatality rates in the four standard weight division groups will be found in Table V. The four standard weight division groups include those infants weighing less than 1,000 gm., 1,001 to 1,500 gm., 1,501 to 2,000 gm. and 2,001 to 2,500 gm. A comparison of the results of the study reported herein with the results of the Long Island College Hospital is presented in Table V. It should be noted that the fatality rate in premature infants weighing less than 1,500 gm. (3 pounds 5 ounces) is high. The efforts of the obstetrical practitioner to carry the mother through to the period when an infant's weight would be above 1,500 gm., and preferably above 2,000 gm., would be compensated by a more favorable premature mortality rating.

Of the 2,519 deliveries, sixteen were by cesarean section, an incidence of only 0.63 per cent. There were two infant deaths in the sixteen infants delivered by cesarean section, resulting in an infant mortality of 12.5 per cent. Ehrenberg,[2] in an extensive study of cesarean sections performed in the hospitals of Minneapolis, Minnesota, reports an incidence of 2.6 per cent, with an infant mortality of 3.9 per cent. Connor reports an incidence of 2.96 per cent in cesarean sections done in Wenatchee, Washington, with an infant mortality of 2.0 per cent. The high infant mortality in cesarean sections in this study is of little statistical significance because of the small number of sections performed. Of the two infant fatalities, one was due to abruptio placentae, and the other was due to atelectasis and prematurity in a case of marginal placenta praevia.

TABLE VI. CESAREAN SECTIONS

	St. Olaf Hospital 1946-1948	Minneapolis (Ehrenberg) 1946	Washington (Connor) 1944-1946
Total deliveries	2519	15,556	2500
No. cesarean sections	16	405	74
Incidence per cent	0.63	2.6	2.96
Maternal mortality	0.00%	0.49%	0.00%
Infant mortality	12.5%	3.9 %	2.0 %

All cesarean sections were of the classical type. All were performed by general surgeons and general practitioners who do obstetrical surgery. The low incidence of cesarean sections and the apparent reticence of the staff to perform the lower cervical section is to be noted in this study. The absence of any maternal mortality and the low morbidity experienced make a favorable commentary.

Summary

1. A survey of the maternal and infant mortality in 2,519 consecutive deliveries by general practitioners in a small general hospital is presented.

2. The statistics as revealed in this study are compared with published statistical material from representative sections of the United States.

3. It is apparent in this study that the incidence of cesarean section is low. It is suggested that the cesarean section should occupy a greater role in the obstetrical care of the patient in this locality.

4. The general practitioner in the small general hospital can secure excellent maternal and infant mortality results in obstetrics.

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SIGHT CAN BE SAVED

"From 50 to 75 per cent of all blindness is preventable," declares Dr. Franklin M. Foote of New York City, director of the National Society for the Prevention of Blindness. Dr. Foote was the guest speaker at the Minnesota Society for the Prevention of Blindness at their annual meeting held in Minneapolis, November 28.

"In the United States there are 260,000 blind. One out of every seven has become blind as the result of an eye injury, the majority of which could have been prevented. The other six attribute their blindness to eye diseases, many of which could have been corrected if taken in time," said Dr. Foote.

A field in which much educational work has been done and where there is great need for work to continue is in informing the public about glaucoma. Dr. Foote pointed out that there are 800,000 cases of glaucoma in the United States which have not yet come to the attention of eye specialists. "The big challenge which glaucoma presents is the problem of early diagnosis. During the late stages the patient's central vision fails, and when this takes place the condition is so advanced that there is little hope of retaining useful sight. Vision which is lost in chronic simple glaucoma is lost forever. But when treatment is given in the early stages it is possible to retain what vision has not been lost."

According to Dr. Foote, a study of national and state figures reveals that we are now spending $56,000,000 a year to help the blind, but less than half a million for preventing blindness. "The average pension that a blind person in Minnesota receives," commented Dr. Foote, "is less than $58 per month, a small amount for a person who is sightless. We should indeed increase the amount we are spending for the blind, but more important still, we should increase many times what we are spending for the prevention of blindness."—*Minnesota's Health,* December, 1949.

THE RATIONALE OF BLOOD TRANSFUSIONS IN THE TREATMENT OF THE TRUE TOXEMIAS OF PREGNANCY

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IN TWO FORMER reports to the Minnesota Academy of Medicine,[1,2] clinical, laboratory, autopsy, and experimental data were presented which converge, in proof, upon the hypothesis that the true toxemias of pregnancy are diseases caused by cell substances from the products of conception; cell substances that are not possessed by the cells of the mother and are toxic to her cells.

The cell substances involved are the organic compounds implicated in blood incompatibility; namely, the A, B, and Rh substances, and, likely, other cell substances that must be assumed to exist, at times, because of irregular agglutination reactions in crossmatching.[3]

In nature, the cure of these diseases is forwarded by the active generation of specific antitoxic substances by the cells of the mother, and by the expulsion of the fetus and its antenatal appendages.[5]

To complete the circle of the toxin-antitoxin mechanism between fetus and mother, if the antitoxin strength in the maternal serum becomes relatively too great, the cells of the fetus containing the specific toxic substance or substances may be injured or killed, with resulting temporary or permanent injury to the fetus or death. Such injury manifests itself in neonatal jaundice, erythroblastosis fetalis, congenital hemolytic anemia, and, likely, in many degenerative diseases, such as progressive muscular dystrophy, mental abnormality, and cardiovascular-renal inadequacy, due to the weakening and destruction of fetal cells under maternal antitoxin attack. Furthermore, there is clinical and serologic obstetrical evidence that suggests forcibly that as fetal toxic cell substances may injure the cells of the mother, likewise, at times, maternal cell substances may injure fetal cells, even to the extent of causing fetal death.[5]

It has been shown that the true toxemias of pregnancy follow a mechanism of cause and cure similar to that demonstrated by diseases due to cell substances from certain bacteria and cell substances in snake venom. In the true toxemias of pregnancy, intraspecies cell substances, that cause disease because of the parasitic relationship between the products of conception and the mother, are involved. The snake injects toxic cell substances contained in its venom by a special mechanism; the fetus may deliver its relatively toxic cell substance or substances through breaks in the placental barrier. In the latter instance, therapy is complicated by the fact that we must aim so to handle the situation that, without permanent or lethal consequences to the mother, the attachment of the fetus is preserved, at least until the parasitic fetus has reached an age permitting independent viability.

As in other diseases caused by toxic cell substances, the extent and severity of the manifestations of disease tend to vary directly with the virulence and dosage of the toxic cell substance or substances, and indirectly with the strength of the specific antitoxic substances in the mother.

The strength of the specific antitoxic substance is most easily determined by titering its so-called isoagglutinin. However, the antitoxic substance has two other arms that are equally specific and tend to parallel in strength the isoagglutinin; namely, the lytic arm and the hemotropic or opsonic arm. Though, in the past, the physiological function and the biological significance of the isohemolysins, isoagglutinins, and isohemotropins in human blood have been deemed to be unexplainable, obstetrical research in the true toxemias of pregnancy seem to make it clear that their physiological function in nature is to protect the mother against a fetus containing cell substances toxic to her cells, and biologically they have played a part in evolution and the breeding in or out of cell substances.

Our traditional concepts of the serologic components of human blood, our definitions of these components and our explanations of how these components interact, have been based largely upon demonstrable phenomena consequent upon the unnatural mixture of bloods and gross blood transfusion. In nature, the chance of the mixture of bloods obtains only in the parasitic relationship between fetus and mother, and here the

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Read before the Minnesota Academy of Medicine, October 12, 1949.

spill from the fetus is usually in such minute amounts that the cells of the mother, if injured by a toxic substance, have time to generate a specific antitoxic substance that aids in the elimination of the toxic substance and the cells containing the toxic substance, usually before the lethal mechanical effects of gross agglutination have a chance to operate. The natural mechanism is most clearly demonstrated by the Rh negative woman who, after one or many pregnancies, may develop an Rh antitoxin. Prior or coincident with the development of this antitoxin, as would be expected, she will show signs of toxemia until the strength of her antitoxin is sufficient to protect her completely. All lines of evidence considered, it is logical to conjecture that it has been this fetus-mother relationship, since the origins of the human species evoluted to the placental type, that has brought about the present inherited composition of human bloods as regards isohemolysins, isoagglutinins, and isohemotropins in our infinitessimal segment of evolutionary time. Obstetrical serologic studies would seem to indicate clearly that incompatibility between human bloods stems from the fact that the incompatible blood contains a cell substance or substances, in its cells and serum, toxic to the cells of the individual, to whose blood it is incompatible. Its incompatibility is due to the fact that the blood with which it is mixed contains either inherited or actively acquired antitoxic substances specific to the toxic substances involved.

Thus, incompatible blood is basically toxic to the cells of the recipient due to its cell substance content, and, as we see in the Rh negative woman, Rh positive blood becomes incompatible only after the Rh negative woman develops an anti-Rh antitoxin. She develops this antitoxic substance because the Rh substance is toxic and injurious to her cells. This concept of the actual toxicity of cell substances to cells of individuals whose cells do not contain the involved cell substances in their inherited molecular cell structure is essential to the understanding of the cause of the true toxemias of pregnancy. Likewise, using the Rh negative woman as an example, it is essential to understand that the appearance of the so-called specific anti-Rh isoagglutinin is an antibody reaction in the true sense of response to injury and is a manifestation of the active generation of a specific antitoxic substance which contains lytic and opsonic properties. If this same Rh negative woman, who has developed the anti-Rh isoagglutinin, is killed by a gross transfusion of Rh positive blood, the transfused red cells containing the toxic substance will be found to be not only agglutinated, but hemolyzed by the lytic arm of the antitoxin, and phagocytosed under the effects of the hemotropic or opsonic arm of the antitoxin. It is a clear toxin-antitoxin reaction phenomenon.

There is a reasonable doubt as to the existence of the traditional entities, agglutinogens and isoagglutinins. But, if in respect for tradition and for the purpose of easy popular understanding, the terms agglutinogen and isoagglutinin are used, it would seem that it should be understood that the specific cell substance and the specific agglutinogen are one and the same entity, and that the specific isoagglutinin is only a manifestation or part of the specific antitoxic substance. Agglutination is most reasonably explainable as a phenomenon brought about when a specific antitoxic substance injures the red cells containing the involved toxic cell substance. This injury allows the cells to approach closer to one another in solution and results in their sticking together, where formerly, in health, they glided by one another freely.

From the frequency of certain findings in the late pregnancy toxemias and the common progressive sequence of their appearance, the cell substances capable of causing this disease may be classified roughly as hemotoxins. They attack the hematopoietic system of the host, causing at times various types and degrees of toxic anemias, anemias that tend to be refractory to iron and liver therapy, even when given parenterally. They attack the cells of the vascular tree, causing increasing permeability; first to water, with consequent hidden and visible edema, and bringing about abnormal increments of weight; then to the larger albumen molecule, with further increase of weight and brawniness of soft tissues, albumen in the urine, and eye ground splashes; then to red cells, with red cells in the urine and petechial hemorrhages in the eye grounds and sometimes in skin and internal organs. In some instances these petechial hemorrhages may assume ecchymotic proportions in the internal organs. Prior or coincident with these manifestations, the blood pressure tends to rise, likely due to direct stimulation of the vessel cells and furthered by intervascular pressure of permeated fluids, especially in encapsulated organs such as the kidney. Vascular spasm is most clearly demonstrable in the eye grounds. It would seem likely that the differences in manifestations and their progress sequence observable in many toxemias arise from differences in the chemistry of the toxic substances involved and variation in the constitutional chemistry structure of the maternal cells.

The acceptance of this hypothesis of cause logically directs serologic therapy. The aims envisaged by the use of blood transfusions are: to raise the red cell and hemoglobin content and thus increase the detoxifying power resident in oxidation; to aid in replacing albumen lost in the urine and aid in restoring the normal chemistry of the blood; to relieve the tissues of the host of a part of the weight of the toxic attack by the absorptive power of the transfused blood; and, where the A or B substances are involved, to add at least a small complement of inherited specific antitoxic substance similar to that inherited by the mother.

The thought immediately arises that the ideal blood for use would be the blood of a woman whose blood is consonant with that of the mother as regards A, B, and Rh status; a woman who has just recovered from a toxemia caused by the same cell substance and whose titer of specific antitoxic substance is demonstrably high. In 1926 McMahon[6] reported ten cases in which he used the sera of recovered women. The results were considered to be remarkably excellent. He could suggest no explanation for these results, nor could any one of us who reviewed and pondered over his findings. At that time, though some of us had been investigating the Dienst theory of fetal blood incompatibility as the cause of toxemia, we interpreted our findings in accord with traditional concepts deduced from the unnatural mixture of bloods and blood transfusion and considered that it was entirely the mechanical effects of red cell agglutination and the necessities of elimination that caused the toxemia, if there were any connection between fetal blood incompatibility and the toxemias. We never harbored the idea that the cell substances involved were the basic cause. The results reported by McMahon were attributed to chance because obstetric and serologic data, at that time, did not seem to permit of a logical explanation of benefits that might be attributed to the use of such sera alone, and even when transfusion of normal blood was used to combat recalcitrant anemia or loss of blood in toxemias, we never attributed beneficial results to any factors other than those of replacement.

Our present knowledge would seem to direct that we use transfusions in the toxemias of pregnancy for serologic purposes to combat the fetal toxic cell substances as we use transfusions in erythroblastosis fetalis and allied fetal injury to combat maternal antitoxic substances. This purpose is so new to us that no amount of clinical data has yet been accumulated that can have any statistical value.

The invitation to give another report on this subject was accepted with avidity, because when attention was directed to investigating the possible practical advantages in point of therapy that might be derived from the application of the theory, it soon became apparent that statistically convincing evidence, founded upon comparisons of large series, could be obtained only if the theory and the consequent rationale of treatment were more widely understood and accepted, at least to the extent that men would be willing to give it a trial.

This investigation is being continued, in the reasoned belief, based upon the logical implications of the theory and a reanalysis and reappraisal of the meaning of outstanding clinical observations to date, that serologic therapy will prove definitely its position as an important adjuvant in the treatment of the true toxemias by bringing about a significant reduction in morbidity and mortality.

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Discussion

Dr. G. Albin Matson, Director, Minneapolis War Memorial Blood Bank: The thought occurs to me that if this theory of the incompatibility of A, B and Rh antigens in toxemia of pregnancy is correct, then one would expect to find, in those races in which those incompatibilities do not exist, a correspondingly lesser amount of toxemia of pregnancy. It so happens that among some of the Indians of this country, we do find

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RESULTS OF THE 1948 CANCER STATISTICAL RESEARCH SERVICE

State Department of Health

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and
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CANCER, the second largest cause of death in the nation and in Minnesota, became an active reporting project of the Minnesota Department of Health on January 1, 1948, when a cancer statistical study was initiated. Under a regulation of the State Board of Health, reports were requested on cancer cases discharged from all Minnesota hospitals, both general and specialized, so that data would be available for studies on the incidence and prevalence of cancer. The results obtained were to be reported periodically to the physicians of the state. For the legal protection of those participating, cancer reporting was incorporated into a Minnesota Statute in 1949, but all the 1948 material was collected under the authority of regulation.

Minnesota's cancer statistical study has been purposely limited to reporting by hospitals. Behind this choice was the idea of sampling cancer cases as the patients are discharged from hospitals, rather than attempting to collect a complete record of all cancer cases occurring in the state. To help hospitals in making reports, two trained medical record librarians have visited each hospital periodically for direct assistance to the hospital staff. This approach has been valuable in stimulating more uniform and complete record-keeping of cancer cases as well as other hospital admissions.

The 3,798 reports returned by hospitals in 1948 were used as a basis for making a series of charts revealing significant trends in cancer for Minnesota. The generalizations made from these data must be carefully qualified. For instance, only 80 per cent of the Minnesota hospitals reported during this period. Also, these data are not entirely representative, because the cancer cases which were reported did not include those patients which were treated exclusively in the doctor's office or in the out-patient department of the hospital. With these considerations in mind, the following conclusions are presented.

For men and women, cancer strikes early and late, but its prevalence increases with age. In both sexes the youngest reported cases occurred under five, and the oldest over ninety-two. The bulk of cancer cases in women occur ten years earlier than the majority of male malignancies, the female peak coming at age sixty-two, and the male at sixty-seven.

Digestive tract cancer, which includes the esophagus, stomach, liver, intestines, and rectum, leads by far in prevalence according to site, with a slight dominance of male over female. Cancer of the female genital tract and cancer of the breast are close seconds. These three regions together form more than 60 per cent of all types reported; of this 60 per cent, approximately 75 per cent represent female cases.

The picture of digestive tract cancer in males closely parallels that of females. Although the male incidence is slightly higher, both male and female peak years coincide at sixty-two.

Less than 2 per cent of breast cancer in women occurs below the age of thirty-seven. Prevalence rises precipitously to the primary peak year of fifty-two, followed by a secondary peak at age sixty-two. Male incidence of breast cancer is negligible.

More cancer occurs in the uterus than in any other single female genital organ. In making this distinction between uterine and non-uterine cancer cases, it was learned that uterine cancer tends to occur ten years later than non-uterine cancer, whose peak age is fifty-two.

Prostatic cancer occurs relatively late in the life of the Minnesota male, its range being from fifty-two to ninety-two with the peak at seventy-seven. Cancer prevalence in other male reproductive organs scatters itself over the normal age range, with occurrences distributed so uniformly as to preclude any useful generalization.

The incidence of urinary tract cancer for both sexes is relatively low up to the age of forty-two. The picture of male urinary tract cancer shows two peaks, one at sixty-two and the other at seventy-two, while the female picture shows a slow steady increase from age forty-seven to the

CANCER CASES REPORTED ACCORDING TO COUNTY OF PATIENT'S RESIDENCE
1948

County	*Total Number of Reports Received*
Aitkin	20
Anoka	20
Becker	30
Beltrami	24
Benton	11
Big Stone	11
Blue Earth	84
Brown	44
Carlton	29
Carver	10
Cass	23
Chippewa	26
Clay	12
Clearwater	15
Cook	4
Cottonwood	10
Crow Wing	46
Dakota	27
Dodge	5
Douglas	23
Faribault	17
Fillmore	2
Freeborn	24
Goodhue	54
Grant	8
Hennepin	95
Houston	—
Hubbard	8
Isanti	11
Itasca	50
Jackson	12
Kanabec	13
Kandiyohi	23
Kittson	12
Koochiching	21
Lac qui Parle	15
Lake	14
Lake of Woods	4
Le Sueur	20
Lincoln	7
Lyon	30
McLeod	13
Mahnomen	3
Marshall	13
Martin	18
Meeker	22
Mille Lacs	27
Morrison	43
Mower	28
Murray	15
Nicollet	20
Nobles	21
Norman	23
Olmsted	2
Otter Tail	57
Pennington	21
Pine	11
Pipestone	5
Polk	70
Pope	8
Ramsey	17
Red Lake	16
Redwood	20
Renville	18
Rice	33
Rock	4
Roseau	22
St. Louis	154
Scott	17
Sherburne	8
Sibley	15
Stearns	89
Steele	10
Stevens	11
Swift	16
Todd	30
Traverse	6
Wabasha	22
Wadena	19
Waseca	4
Washington	39
Watonwan	24
Wilkin	14
Winona	30
Wright	26
Yellow Medicine	21
Fort Snelling	—
Minneapolis	1044
St. Paul	539
Duluth	177
Iowa	—
North Dakota	1
South Dakota	—
Wisconsin	—
Canada	—
Other States & Territories	1
Mexico	—
Other Nations	—
Unknown	3
TOTAL	3798

peak of seventy-seven, from which point it takes a sharp drop.

About two and one-half times as many males as females are afflicted with cancer of the respiratory system. Among men under thirty-seven, the prevalence of respiratory tract cancer is less than 3 per cent. For women under thirty-seven, the figure increases to 12 per cent. The peak year for males is sixty-two, while that for females is fifty-seven. The majority of respiratory tract cancer in men falls within the age range of fifty-two to seventy-two. Outside of a moderate peak at fifty-two, the pattern of female respiratory tract cancer reveals no significant characteristic.

Buccal cancer occurs most frequently in older groups of men and women. Only 3 per cent of women and 7 per cent of men have buccal cancer before the age of forty-two. Men again lead in the number of cases, reach their peak at sixty-seven and have a high incidence in later life. Women, on the other hand, reach their peak year at sixty-two and fall off gradually with advancing years.

Skin cancer predominately is a problem of the male population. The bulk of the male skin cancer occurs between the ages of fifty-seven and eighty-two. Female incidence of skin cancer remains low and fairly steady over life age span.

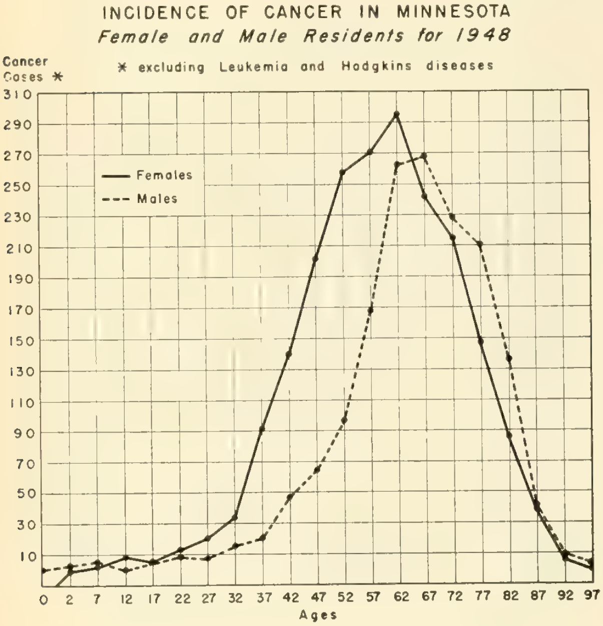

Fig. 1.

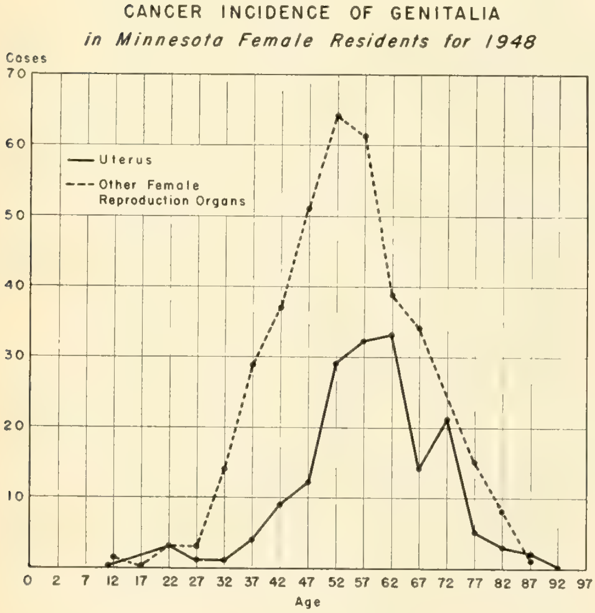

Fig. 3.

Leukemia and cancer of the central nervous system, each with six cases, account for more than half the malignancies reported under the age of ten. No significant peaks are seen in charting the ranges of these sites, and in both cases no incidence is recorded after eighty-five, about five years earlier than other recorded cancerous conditions.

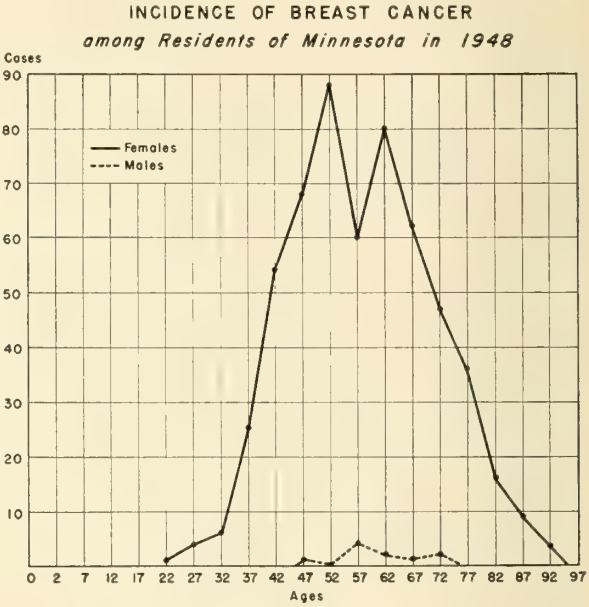

Fig. 2.

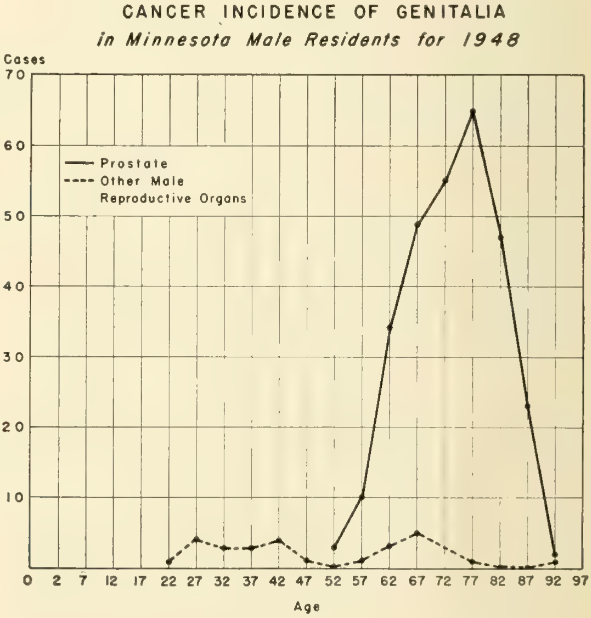

Fig. 4.

Hodgkins' disease has a low incidence, with only thirty-nine cases reported. These occur mainly in the middle years of life.

The interval between onset of symptoms and consultation with a doctor is directly related to cancer control. Although this time element in cancer is one of the most important aspects of the problem, it is one of the most difficult upon which to collect accurate and complete data. The two questions asked in the study relied upon recall and recollection by both patient and doctor; in relatively few instances were these data ever included in the original hospital record.

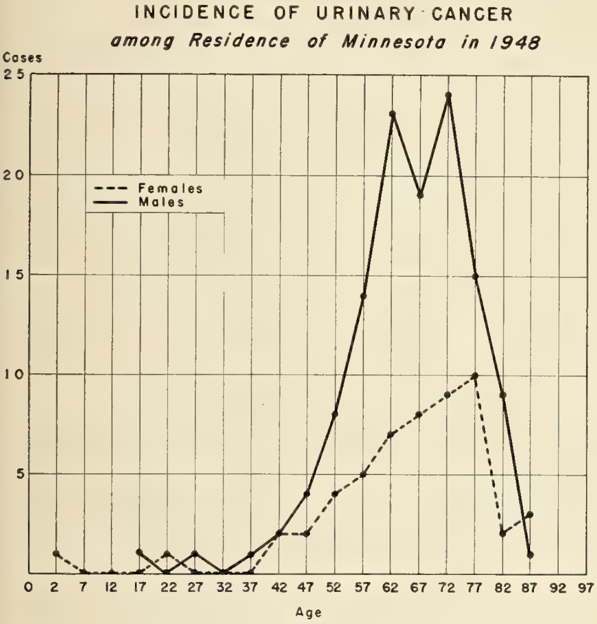

Fig. 5.

The belief that greater emphasis should be placed on acquainting people with symptoms of cancer has been borne out by the findings of this study. Six out of ten people with cancer wait four weeks or more before seeing their doctors. The doctors, however, are more prompt; five out of ten of their patients are hospitalized in less than a week, and six out of ten within a month. Although persons suffering from mouth and skin cancer would appear to have more noticeable symptoms, as a group they wait the longest before seeing their doctors. Cases of cancer of the central nervous system and leukemia, the two neoplasms which account for more than half of all cases under the age of ten, also are the two types of cancer which are most likely to lead people to seek early attention from their doctors after onset of symptoms. Women suffering from cancer of the reproductive organs are first to be hospitalized, while men with genital cancers delay the longest.

Minnesota's cancer statistical study is intended to be a continuous flexible program whose results can be significant when measured against long-term objectives. It provides a center for the collection of cancer data on Minnesota people which has never before been available. The study is an approximate measure by which our combined and coordinated efforts to combat cancer may be evaluated.

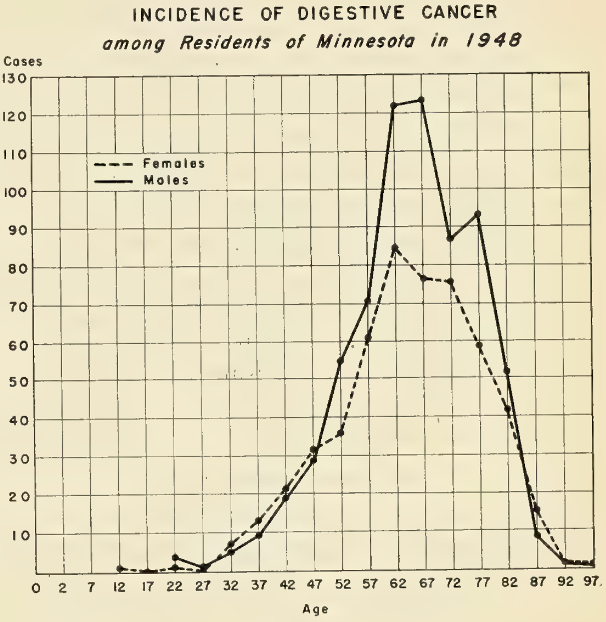

Fig. 6.

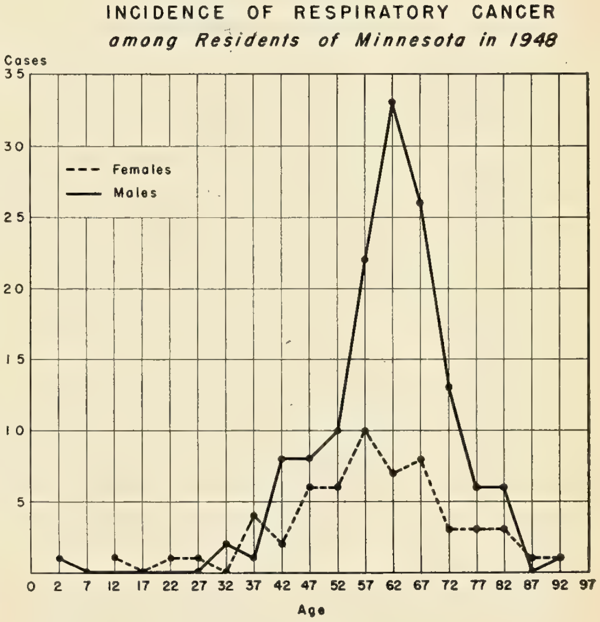

Fig. 7.

ANALYSIS OF 10,000 APPENDECTOMIES

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Minneapolis, Minnesota

IN SPITE of the fact that there is already a voluminous literature on the subject of the vermiform appendix, its study remains a fascinating one, and the diagnosis and treatment of its pathological states constitute a continuous challenge to the family physician and the surgeon. This discussion will not deal with the treatment of appendicitis or its evaluation. Numerous excellent dissertations on this phase are available in the literature, notable among which is the recent exhaustive study by Green and Watkins[6] of 19,399 cases in Cleveland. The study at hand is concerned with the pathological evaluation of the appendectomy specimen.

Source of Material

This analysis is based upon 10,000 surgically-removed vermiform appendices which were studied and classified in the laboratory of the Department of Pathology at the University of Minnesota Medical School. There are no autopsy specimens in the series. These specimens comprise the unselected material from the years 1942 to 1948, which was sent to Dr. E. T. Bell and his associates from numerous individual surgeons and small hospitals scattered over the states of Minnesota, North Dakota, South Dakota, Montana and Wisconsin. In general, the material arrived from hospitals and clinics too small to support a pathologist of their own, and who consequently chose to employ this particular laboratory to study their surgical material. Most of the hospitals and surgeons concerned were regular clients of the University laboratory, and they forwarded their formalized surgical specimens of all types every week or two. University Hospital material is examined in a separate laboratory and none of it is included herein.

Method of Study

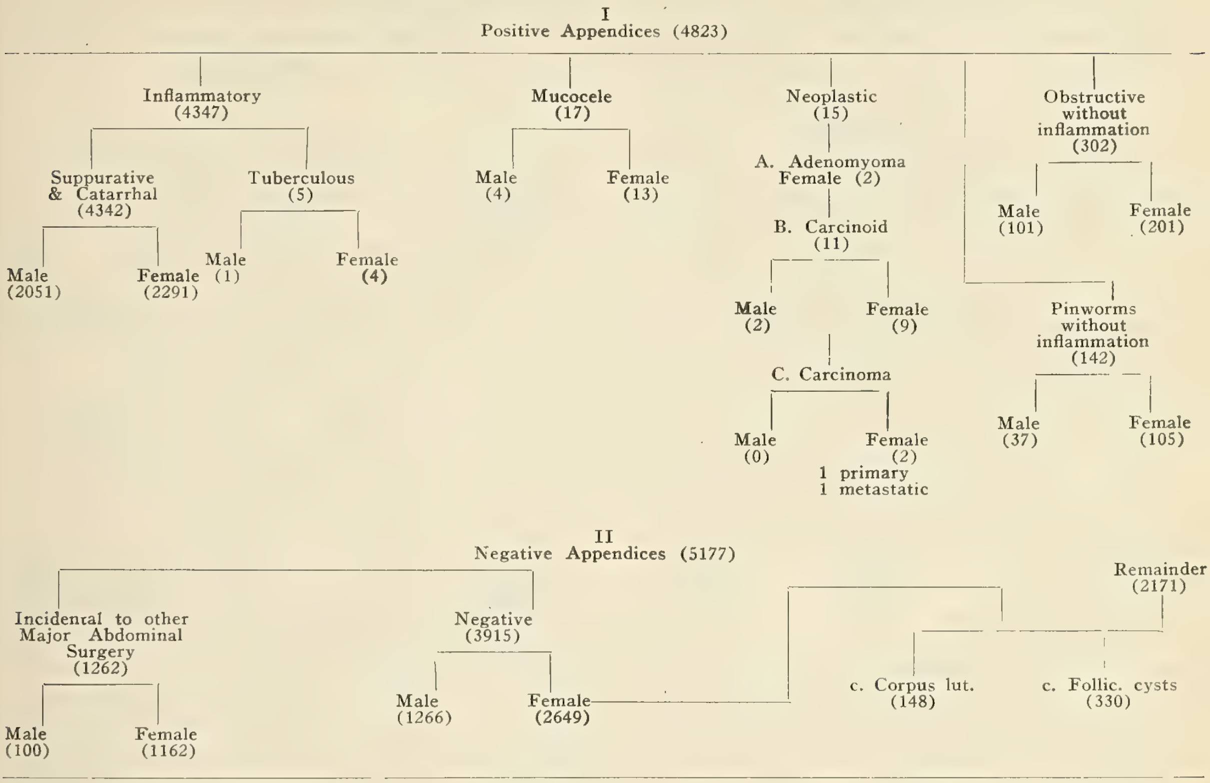
As the specimens arrive each day, they are first examined grossly and notations made concerning length, diameter, external appearance, presence or absence of fecoliths, presence or absence of perforations or gangrenous areas, and the character of the luminal contents. Thus, it is important for the sake of an accurate examination, that the appendices be submitted *in toto* and unopened. Sections for microscopic study are taken from the most likely appearing portions of each appendix. If the specimen appears grossly normal, sections are selected at random from widely scattered portions. For a period of several years, two sections were made from each normal-appearing appendix. More recently, three sections were made from each, since it was observed that sometimes one section would show the microscopic criteria of disease and the others would be normal. Even with three sections, it is occasionally found that two will be normal and the third show disease. Consequently, there is an admitted chance of error in occasionally missing the diseased portion of an appendix. The slides are stained with haematoxylineosin. The criteria of disease may be summarized as follows:

Criteria	*Diagnosis*
1. Pus cells in tunics of appendix	Suppurative appendicitis
2. Lymphocytic infiltration of serosa	Recurrent or healing appendicitis
3. Pus in lumen of appendix but not in the tunics	Catarrhal appendicitis
4. Oxyuris vermicularis in the lumen	Pinworm infestation

Authorities have disagreed on the significance of the obliterated appendix. It is not considered pathological in this laboratory. Aschoff was sure that fibrotic obliteration was due to previous inflammation.[3] Ribbert, Zuckerkandl and others regarded it as a natural regressive process.[3] In a series of 400 autopsies, Ribbert found partial or complete occlusion of the lumen in 25 per cent. Sir Arthur Keith declared that at the age of 70, 50 per cent of individuals will have atrophied appendices.

The significance of pinworms in the appendiceal lumen is also debated by authorities. Nathan Foot[5] states that pinworms and whipworms in the appendix may produce the typical symptoms of an acute attack of appendicitis, although the mechanism involved is obscure. It is known that pinworms leave pinpoint erosions in the mucosa which may bleed slightly. M. A. Bell[2] says that pinworms do not penetrate the wall of the appendix

TABLE I. PATHOLOGICAL ANALYSIS OF 10,000 APPENDECTOMIES


I
Positive Appendices (4823)
Inflammatory (4347)
Suppurative & Catarrhal (4342)
Male (2051)
Female (2291)
Tuberculous (5)
Male (1)
Female (4)
Mucocele (17)
Male (4)
Female (13)
Neoplastic (15)
A. Adenomyoma Female (2)
B. Carcinoid (11)
Male (2)
Female (9)
C. Carcinoma
Male (0)
Female (2)
1 primary
1 metastatic
Obstructive without inflammation (302)
Male (101)
Female (201)
Pinworms without inflammation (142)
Male (37)
Female (105)
II
Negative Appendices (5177)
Incidental to other Major Abdominal Surgery (1262)
Male (100)
Female (1162)
Negative (3915)
Male (1266)
Female (2649)
Remainder (2171)
c. Corpus lut. (148)
c. Follic. cysts (330)

until after removal of the organ, when they may do so. Warwicke theorized that the presence of the parasites in the empty appendix may cause constractions simulating symptoms of appendicitis.

Chronic lymphoid appendicitis is described by Foot[5] as co-existing with chronic enlargement of mesenteric lymph nodes. This eventuates in fibrosis and obliteration.

"Chronic appendicitis," as a clinical concept, does not have much standing these days. No microscopic criteria of this syndrome are recognized in this laboratory.

Since fecoliths are so important in the etiology of appendicitis, being present in about 60 per cent of acute cases,[11] the policy has been employed of considering cases of fecolith without evidence of inflammation in the "positive" group.

Mucoceles and neoplasms are of considerable statistical interest and are classified logically into their own groups.

Incidence of Various Types in the Literature

Of particular interest in close, unified groups of physicians, is the percentage of normal appendices in a series of cases. It is generally accepted that a good diagnostician should not have more than 20 per cent normals in a sizable group of appendectomies. Sappington and Horneff[13] found 60.3 per cent normal appendices in 937 cases in 1938. They quote Aschoff as finding 35 per cent normals in a series of 847 cases of primary appendectomy. In 1941, Mason, Allen et al[9] reported 18.6 per cent normals in a group of 1,000. In 1946, Joffe and Wells[7] of Duluth reported 27.4 per cent normals in a group of 1,000.

TABLE II

Total Number Appendectomies	10,000	
Incidental Normal Appendices	1,262	
Corrected total for basis of % normals	8,738	
Positive Appendices	4,823	(55.2%)
Corrected Normal Appendices	3,915	(44.8%)

In a conglomerate group, such as I am reporting, with dozens of physicians scattered over thousands of miles contributing the material, it could hardly be expected that an ideal percentage of diagnostic accuracy would be attained. Some of these physicians are practicing medicine under difficult conditions and do not have available the diagnostic equipment or consultants of larger centers. On the other hand, certain physicians in this group have consistently excellent rates of diagnostic accuracy. Table II shows the corrected normals in this group to be 44.8 per cent.

Tuberculous appendicitis is so rare that the identification of a single case warrants its publication. In 1936, W. J. Carson[4] was able to collect 125 cases from the literature. Drissen and Zollinger, in 1935, found an incidence of 0.3 per cent among 5, 149 appendices examined at the Peter Bent Brigham Hospital over a twenty-year period.

In the group reported herein, tuberculous appendicitis constituted 0.05 per cent of the entire series of 10,000, and 0.1 per cent of the pathological appendices (Table III.)

TABLE III. PERCENTAGE INCIDENCE OF RARE TYPES

	In Entire Group	In Positive Group (4823)
1. Tuberculous Appendix	0.05%	0.10%
2. Mucocele	0.17%	0.35%
3. Adenomyoma	0.02%	0.04%
4. Carcinoid	0.11%	0.23%
5. Carcinoma	0.02%	0.04%
5a. Primary Carcinoma	0.01%	0.02%

R. A. Moore[11] states that mucocele of the appendix occurs in about 2 per cent of all persons. Uihlein and McDonald[14] found twelve mucoceles in the Mayo Clinic material from years 1910 to 1941. This is in contrast with 127 carcinoids and five adenocarcinomas. These figures would indicate that mucocele of the appendix is a comparatively rare discovery for the surgeon.

In this series there were seventeen mucoceles, or 0.17 per cent of the entire group, and 0.35 per cent of the pathological portion.

I could find no references on the incidence of adenomyoma of the appendix in the literature. One would expect its occurrence to be closely related to the incidence of endometriosis, whether symptomatic or not. In the two cases herein listed, the adenomyomas were found in the serosal layer, indicating, of course, that they were peritoneal implants. The gross incidence was 0.02 per cent; and the incidence of the pathological group 0.04 per cent.

Carcinoids constitute the most common tumor of the appendix, and there is a rather extensive literature on the subject. This very interesting lesion was named by Oberndorfer in 1907[10] on the basis of its histology and apparent benignity. Some of the standard textbooks (Boyd,[3] Bell[1]) state its incidence as from 0.3 per cent to 0.5 per cent of all appendices removed surgically. McCarty and McGrath,[8] with 0.44 per cent of a series of 8,039 from the Mayo Clinic in 1914, and Selinger,[12] with 0.35 per cent of a series of about 10,000 from New York Post Graduate Hospital in 1929, support this generalization. However, Thomas Moore,[10] in 1938, found only ten cases of carcinoid among 10,229 appendectomies, at the Royal Victoria Infirmary, Newcastle on Tyne, over a ten-year period. It is interesting, in passing, to quote Young and Wyman[15] to the effect that 82 per cent of carcinoids occur in females because that was exactly the situation in my series.

TABLE IV

Total Female Normal Appendices.......... (Corrected for incidental group)	2,649	
Negative appendix with resection of ovary for small follicular or luteal cysts or corpus luteum..........................	478	(18.%)
A. Negative appendix plus corpus luteum..	148	(5.5%)

The incidence of carcinoid in this series is in remarkable agreement with T. Moore, rather than with the earlier authors, namely 0.11 per cent of the series of 10,000, and 0.23 per cent of pathological appendices.

True carcinoma of the appendix is very rare. The literature has to be examined critically when searching for reports[15] on this lesion since many writers use the term rather loosely and include carcinoids and mucoceles in the category. Nathan Foot says that of the thousands of appendices he examined at New York Hospital over a twelve-year period, not one showed true carcinoma. Thomas Moore[10] found one case of true carcinoma in 10,229 appendectomies. This coincides with the findings of the present series in which two true carcinomas were found, one primary, and one metastatic.

Comment

It will be noted that in the group of normal appendices, after those incidental to other major abdominal operations have been excluded, the females outnumber the males two to one. In view of the proximity of the female genital tract to the appendix, and in view of the proneness of the former to yield symptoms which may be confused with appendicitis, this disproportion is probably to be expected. Reference to Tables I and IV reveals some additional information concerning the normal female appendices. In 478 (18.0%) of the 2,649 females from whom normal appendices were removed, the ovary or ovaries were resected, with the resultant pathological dis-

(Continued on Page 53)

THE TREATMENT OF ACUTE CHEST INJURIES

With Especial Reference to the Use of Tracheotomy

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THERE ARE few medical and surgical emergencies wherein the patient's recovery is determined by the physician's being able to recall immediately the basic physiology, anatomy and treatment of the emergency. Acute chest injury is one such example and is illustrated by the following case.

A thirty-five-year-old white man was admitted to the emergency room at Ancker Hospital following a car-train collision on April 3, 1949. He was unconscious, in shock, markedly dyspneic, and cyanotic. He had severe subcutaneous emphysema particularly of the neck and face. There were fractures of the first and second ribs on the left and of the first on the right. He also had a comminuted fracture of the distal third of the left ulna and radius and a fractured left clavicle. His pulse became very weak and rapid. Because of his respirations, pulse, and the rapid increase in emphysema in the suprasternal notch, and from physical examination, a diagnosis of severe mediastinal emphysema and left pneumothorax was made.

A 15-gauge needle was inserted adjacent to the sternum into the left fourth interspace and directed medially into the mediastinum. About 15 c.c. of air was withdrawn with immediate respiratory relief to the patient. Immediately following removal of the needle, the patient again developed symptoms and again was relieved by aspiration. A 15-gauge needle connected to a stop cock and 50 c.c. syringe then was inserted into the left third interspace anterior-laterally and 1500 c.c. of air was removed from the pleural cavity. This was done on several occasions with marked improvement in the patient's respirations and color. It was evident that the patient had a bronchopleural fistula because of the rapid accumulation of air into the pleural cavity, so a left thoracostomy was done with the introduction of a No. 15 urethral catheter through a trocar in the region where the needle was inserted. The catheter was attached to a Stedman pump and constant suction maintained. It soon became evident that the patient's bronchopulmonary tree was filling with secretion typical of the "wet lung" syndrome. Because catheter suction of the trachea through the larynx was unsatisfactory due to the patient's unconsciousness, and since numerous autopsies here have shown that many of these patients die from pulmonary complications arising from overaccumulation of bronchial secretions, a tracheotomy was performed. A profuse amount of intratracheal and intrabronchial secretions was aspirated with again marked improvement in the patient's respiration. Five hundred c.c. of blood had been started upon admission and supplemented with 1000 c.c. of 10% glucose in distilled water. Almost constant suction was maintained the next 24 hours to keep his respiratory tree cleared.

The next day, examination revealed a right pneumothorax, and a right thoracostomy with a catheter and a trocar was done after several needle aspirations of air. His temperature rose to 104.2° but gradually subsided during the next thirteen days. He alternated between coma and disorientation for thirteen days, during which time constant tracheal suction and penicillin therapy were maintained. On the fifth day, physical examination and radiographs revealed expansion of the lungs, and after clamping the thoracostomy tubes for twenty-four hours without recurrence of symptoms of pneumothorax, the tubes were removed. He had received a total of four pints of blood about 2000 c.c. of intravenous fluid per day. On the seventeenth day, the tracheotomy tube was plugged with a cork since trachea suction was no longer necessary and the tube was removed in twenty-four hours. An open reduction of the ulna and radius was performed the twenty-fifth day and on April 29, 1949, the patient was discharged from the hospital and has been well since.

Comment.—This case represents several interesting procedures which were instituted as lifesaving measures. The mediastinal aspiration and left thoracostomy are prime examples. Had a tracheotomy not been done, it is probable that pulmonary complication would have been such that the patient would have succumbed within the next two days because it would have been necessary to bronchoscope him every three to four hours to offer him respiratory relief from profuse bronchial secretions. Patients in a state of coma are unable to bring up these secretions and subsequently may die of bronchopneumonia. This fact plus the presence of severe chest injury which in itself is an important cause of "wet lungs" (edema), suggests that tracheotomy should be thought about early in cases of the type presented. His entire course was based upon a fundamental knowledge of the physiology and anatomy of the chest and training in the treatment of thoracic injuries.

Physiology

The physiology of the thoracic structures is only too poorly understood by many untrained

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in the chest specialties. The thorax is a semirigid cage, within which lie the lungs and mediastinum which respond to simple physical laws. When the muscles of respiration act during the inspiratory phase, the thoracic cage is enlarged, creating a negative pressure approximately —6 mm. Hg within the thorax. Air enters the lungs via the larynx and trachea much as it would into a bellows. The lung parenchyma is stretched as air enters the alveoli; and when the muscles of respiration cease to act, the expiratory phase, a purely passive action, takes place due to the contractility of the muscle and lung tissue. At the end of expiration the pressure within the thorax is about —2.5 mm. Hg. When a person is dyspneic, accessory muscles of respiration come into play, and the expiratory phase then becomes an active phase. Pressures in the chest may change over tenfold. It is readily understood that the above cycle is dependent upon both a firm and a sealed thoracic cage. Should a chest wall become flail through injury, the wall will respond to the intrathoracic negative pressure and transmit its negative pressure to the mediastinum if it is not fixed from disease, so that no increase of intrathoracic pressure is transmitted to the lungs and the act of inspiration does not occur. This also takes place in large sucking wounds of the thorax where the air enters and leaves the thoracic cage through the wound in response to the forces of respiration instead of through the larynx and trachea.

The mediastinum contains the heart, great vessels, nerves, lymph nodes, thymus and part of the thyroid. There is no cage protecting these structures so they are also acted upon and influenced by intrathoracic pressure. When the intrathoracic pressure becomes more negative during inspiration, the great veins and atria tend to fill with blood because the intravenous pressure in these organs is much less than in other parts of the venous circulation. Expiration, especially if forced, tends to force blood out of these organs. These veins, including those of the neck, are valveless and any sudden imbalance of pressure within the thorax may adversely affect the cardiorespiratory function of the body. Traumatic asphyxia due to a sudden crushing injury with a compression of the thorax is a typical example. The enormous increase of intrathoracic pressure collapses the great veins and atria and forces blood into the valveless veins of the head and neck causing a cyanotic discoloration of a "violet hue" and petechiae of the head, neck and shoulders. There may be subconjunctival hemorrhage with protrusion of eyes and swelling of the lids and tongue. Blindness may result. Cerebral symptoms such as coma, rigidity, and convulsions may be present and are due to the anoxia rather than to cerebral petechiae. This type is known as ecchymotic traumatic asphyxia. The pale type may also have areas of purplish discoloration but there is a typical pallor of the face and neck and the patient has a cold, clammy skin; weak, rapid, thready pulse; and an uneven, shallow respiration.

Another important physiological problem is intrabronchial secretions which may complicate an acute chest injury. Normally, the bronchial secretions are relatively fluid, becoming more so as they approach the main bronchi. The bronchial tree is kept clear by the beating of the bronchial cilia which sweep toward the trachea and larynx and also by the cough mechanism in which intrabronchial pressure is built up by sudden expiration from the force of the expiratory muscles of respiration and the bronchial musculature, resulting in marked increase of pressure of the intrabronchial air against a closed larynx. When the larynx suddently opens, the intrabronchial pressure is suddenly released carrying with it particles of intrabronchial and tracheal secretion. When these secretions become overabundant due to stimulation of the secreting cells and more mucoid and tenacious, it becomes more difficult to expel the sputum. If pain is present in the chest, the patient normally inhibits his cough reflex. There is evidence accumulating to show that following severe chest injuries, the secretions of the tracheal bronchial tree are altered and become more profuse yet more mucoid and sticky.[4,15] Burford and Burbank believe that intrathoracic organs, especially the lung, react to localized contusion of the chest wall very much as tissues in any part of the body may react to localized blows, that is, with edema formation. This, in the lung, may result in atelectasis, hypoxemia, and pneumonitis. deTakats[16] demonstrated experimentally that the bronchial tree goes into spasm following chest wall injuries, pulmonary emboli, or vagal stimulation and secretes thick, sticky mucus. This material is very difficult to raise, especially if coughing causes chest pain, and the cycle terminates in a clinical entity described as "wet lung." He proved that atropine or papaverine in high dosages partially and at times entirely blocked this mechanism. It would seem logical therefore to use these drugs to prevent the condition from arising. If the secretions have already formed, they must be aspirated by a catheter or bronchoscope since atropine will only further prevent their being diluted by normal secretion. On occasions, such as in this case report, tracheotomy must be resorted to because, if untreated, the wet lung syndrome will result in death.

With an understanding of these few fundamentals, a rational attack to the problem of an acute chest injury can be launched. The first and primary job is to correct the severe cardiorespiratory difficulty. From just a glance, a few words about the type of injury sustained, percussion and auscultation, a diagnosis of the injuries present can usually be made. If the patient presents evidence of traumatic asphyxia and dyspnea due to increased intrathoracic pressure, it is usually either severe tension pneumothorax or a hemothorax, the differentiation of which is easily made by percussion and auscultation. These procedures also give information as to whether a "wet lung" is developing. If he is breathing rapidly but is still pale and somewhat cyanotic, a quick examination reveals whether a flail chest or a crushing chest wound is present. If mediastinal emphysema is present, there will be also severe subcutaneous emphysema about the neck and face; the diagnosis is easily made by palpation. The treatment of each of these problems is well known.

Tension Pneumothorax

Tension pneumothorax may develop without rib fracture or penetration of missiles. The patient presents a picture of acute dyspnea and cyanosis and has total or partial collapse of the involved lung. He may present either the picture of the pale or ecchymotic type of traumatic anoxia. Percussion reveals marked tympany on the side of the pneumothorax and usually a shift of the mediastinum. Auscultation reveals little or no breath sounds in the involved side. Diagnosis can positively be made by x-ray, but on occasion there is no time to wait for films. An 18-gauge needle inserted into the chest wall at the level of third or fourth rib anterior-laterally will result in a loud hissing noise as the air under pressure escapes. This will relieve the patient while a syringe is readied with either a rubber adapter that can be fitted over the needle and attached to the syringe or a two-way stopcock. If the air ceases to leave the needle and is being sucked in before the syringe is ready, the adapter end of the needle must be covered tightly to prevent air being sucked into the thoracic cavity. With the syringe, air is removed until the pleura can be felt rubbing against the end of the needle or the patient complains of a severe tight sensation in the chest, a cough, or has a poor pulse.

The next day more air can be aspirated and the lung expanded. If the pleura is left with too negative a pressure as evidenced by the severe tight feeling the patient experiences, pleural effusion will develop. If air rapidly accumulates after aspiration, there is a tear into the lung parenchyma or bronchus creating a bronchopleural fistula. The air should be reaspirated; and if the accumulation continues, a soft rubber catheter should be inserted through a trocar into the thoracic cavity at about the level of the fourth or fifth rib in the anterior axillary line and connected to either a Stedman pump or water trap bottle until the lung is expanded.

Tension pneumothorax must be differentiated from progressive bullous emphysema since aspiration of these bulli usually results in death.[1]

Hemothorax

The patient usually complains of pain in the involved side of the chest and may be dyspneic and cyanotic. If the hemothorax is massive, he may also present the picture of traumatic anoxia. On other occasions, it is only diagnosed by routine chest films taken for rib detail and the localization of the fractured ribs. It is well proven that immediate aspiration of the hemothorax and instillation of at least 500,000 U. of penicillin without air replacement is now the treatment of choice[4,5,8,13] as compared to the previous custom of either leaving the blood in the thoracic cavity or replacing the blood with air. If there is continuous bleeding, neither leaving the blood in the chest nor replacing it with air will stop the bleeding and a thoracotomy will be necessary.[6] When introduced into a hemothorax, air rises only to the apex of the chest, which prevents the expansion of the upper lobe which is the most difficult part of the lung to expand if a "thickened pleura" develops.[5]

Also, the popular belief that blood lying free in the pleural cavity will not clot is fallacious. If there is a crushing type trauma of the pleura or lung, clotting readily takes place.[2] Following clotting multiple loculations develop necessitating thoracotomy with decortication of the thickened "peel" over the pleura of the lung. Actually, the "peel" is not a thickened pleura but rather an organized exudate overlying and adhering to a normal pleura.

Mediastinal Emphysema

It is rare that mediastinal emphysema becomes so severe that treatment must be instituted. However, the reported case demonstrates that this may happen. The patient may present symptoms of dysphagia, cyanosis, extrapericardial tamponade with circulatory failure and death. There may be electrocardiographic changes and a "popping" sound heard during systole. Aspiration as described by Gumbiner and Cutler should be carried out. A needle is inserted in the third or fourth left interspace 1 cm. to the left of the sternal border and directed medially parallel to the surface of the sternum, and aspiration performed. Incisions in the suprasternal notch should be avoided if possible.

Flail Chest

The patient usually has acute respiratory embarrassment and chest pain with gross evidence of the flail chest and paradoxical respiration. There are fractures of the involved ribs in two places. The chest wall must be fixed by some method, one of which is the use of towel clips around several of the involved ribs midway between the fractured sites. The clips must be held under tension by traction.[3] The chest wall may be supported in the other direction by adhesive tape. Tape alone is of no benefit. Since the patient will have pain with coughing in any type of rib fractures, the best method of treatment is injection of the intercostal nerves with novocaine proximal to the sites of fracture. Depressed fractures of the sternum also result in a flail chest. The sternum must be supported by traction instituted either with towel clips, a wire inserted under the sternum, or malar traction clamps. Care must be taken not to pierce or tear the internal mammary arteries.[10]

Sucking Wounds

The patient presents the same symptoms as in a flail chest. The sucking wound must be immediately sealed with an occlusive dressing and the pleural cavities aspirated of air and blood to restore the patient's cardiorespiratory balance. Under sterile technique the wound must be debrided, bleeding vessels ligated, and the wound closed primarily. Pneumothorax and hemothorax must be handled as previously described. Penicillin should be introduced into the pleural cavity.

Wet Lung

The interesting clinical entity, wet lung, if untreated, often leads to atelectasis, pneumonia, bronchiectasis, or death. As previously described it seems to result from chest wall trauma and pain. If intercostal nerve blocks are done and the patient is relieved of pain and can cough sufficiently to clear the respiratory passages, the passages remain clear until the pain reappears. Atropine used after clearing the passages blocks the re-formation of the mucus.[7] The technique of intercostal block is very simple. The injections are made preferably at the angles of the ribs. A 20-gauge needle is directed perpendicularly until the rib is encountered and then directed under the rib for the distance of 0.5 cm. Five to 10 c.c. of 1 or 2 per cent novocaine are injected into this area. All the involved ribs are injected including the uninvolved rib above and below. Paravertebral blocks also may be used, the technique of which is only slightly more difficult.[9] The patient should have moderate sedation for restlessness. Morphine sulfate can be used since the slow respirations are more efficient than the rapid type.[12] Carbon dioxide 100 per cent for two to three breaths followed by coughing is helpful. If no improvement occurs after injecting the intercostals and using CO_2, place the patient in a semi-Fowler's position and pass a No. 16 or No. 18 urethral catheter with suction attached through nose into pharynx. During an inspiration advance the catheter rather rapidly, and it will usually pass into the larynx.[15]

The patient will experience a severe coughing spell in spite of pain and will raise an appreciable amount of the tenacious sputum. Also, if possible, leave the catheter in place until the passageways are clear. If clearing the passageway fails by this method, then bronchoscopy must be resorted to.

It is to be emphasized that the bronchial passages are to be kept clear at all costs. Patients with chest injuries frequently die of bacterial pneumonitis after the basic disturbances in the chest physiology have been readjusted. Catheter suction is excellent if an experienced person is present constantly at the bedside, because the secretions accumulate rapidly. If there is any doubt that catheter suction or bronchoscopy will not suffice, tracheotomy should be instituted early. With a tracheotomy present, suction of the trachea and bronchi can be carried out simply, quickly, and accurately. In those cases where loss of sensorium is present in addition to severe chest injury, it is our belief that tracheotomy should be instituted immediately. In fact, tracheotomy probably should be employed in all patients with coma who have a reasonable chance of getting well.

Summary and Conclusions

1. A case is presented in which bilateral pneumothorax, mediastinal emphysema, rib fractures and coma were present on admission. Treatment of these conditions is discussed.
2. There is a short discussion of the physiology of the chest, and treatment of the more common types of acute chest injury is given.
3. It is suggested that tracheotomy in cases of severe chest injury should be considered very early in order that the bronchial secretions may be removed adequately.

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ANALYSIS OF 10,000 APPENDECTOMIES

(Continued from Page 48)

closure of small follicular or luteal cysts or normal corpora lutea. These figures refer only to tiny cysts, not to large ovarian cysts of various types. Evidently, the surgeon, after his disappointment in encountering a normal appendix, went on to examine the pelvic organs. Upon finding a slightly enlarged or reddish or yellowish ovary, he resected it with the hopes that it would cure the patients' symptoms. Probably this is a naïve explanation. At any rate, the pathological study of these specimens forces the conclusion that the additional procedures were not warranted. Particularly unjustified is the removal of a normal corpus luteum (which occurred in 5.5 per cent of the negative female group.) Identification of the corpus luteum for what it is *in situ* at the time of surgery would enable the operator to diagnose probable *Mittelschmerz* and warn the patient of possible similar attacks in the future.

Summary

This study comprises 10,000 consecutive surgically-removed appendices, which were examined over a seven-year period in the laboratory of Dr. E. T. Bell and his associates at the University of Minnesota. The series is analyzed by means of several tables. The incidence of the rare types is described and compared with that found in the literature. After deducting the normal appendectomies incidental to other abdominal operations, the corrected percentage of normals is 44.8 per cent. The practice of resecting an unpathological ovary in the presence of a normal appendix is described and commented upon.

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HEMOCHROMATOSIS

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HEMOCHROMATOSIS is a comparatively rare disease, thought to be of metabolic origin and usually characterized by the triad: (1) marked deposition of iron-containing pigments in many of the body organs; (2) cirrhosis of the liver; (3) diabetes mellitus.

The disease was perhaps first described in 1871 by Trosier, who recognized a bronze cachexia in cases of diabetes mellitus. Von Recklinghausen, in 1889, named the disease hemochromatosis and thought it was due to primary blood destruction which resulted in deposits of pigment through the body.

The paucity of this disease becomes very apparent when one realizes that less than 600 cases have been reported. In a large Toronto hospital, only nine cases in thirteen years were observed.[1] Bellevue Hospital, New York, reports four cases in 5000 autopsies; Johns Hopkins, three cases in 100,000 admissions. Another study of 5000 diabetics revealed only two cases.

The disease enjoys a world-wide distribution and is seen chiefly between the ages of forty-five and fifty-five years. Men are especially affected, perhaps 90 per cent of the cases being of this sex.

The etiology of the disease is uncertain and various theories have been advanced. Some believe that the disease is due to a toxin either bacteriological or chemical (zinc-lead-copper) whereby there is destruction of red blood cells with liberation of iron from hemoglobin. The nutritional basis has been offered as an explanation because in Africa the disease is a common sequela of pellagra which in turn is a dietary deficiency state. Butt and Wilder suggest that perhaps a hypovitaminosis A during fetal life renders the intestinal mucosa defective and thereby permits the entrance of amounts of iron or affects the general body metabolism so that iron in individual cells is defectively metabolized. Some writers believe there is an association between aplastic anemia, treated by repeated transfusions and hemochromatosis, the iron from the destruction of blood being deposited in a cirrhotic liver and also in the pancreas. Perhaps the most adequate explanation of the disease in the light of our present knowledge is that the disorder is an inborn error of metabolism, probably congenital, which allows the entrance of small amounts of iron into the cell, but does not permit its excretion. The symptoms of the disease are due to the secondary resultant effects, cellular destruction and fibrosis in the various organs.

The pathology of the disease[2] is concerned primarily with pigment alteration, which secondarily produces destruction and fibrosis of the various body structures. Melanin, a normal skin pigment, is markedly increased and does not enter into the destructive process as does hemosiderin and hemofuscin. Hemosiderin is a protein-iron compound with a deep yellow to brownish-yellow color and is found in all tissue, except perhaps nerve and smooth muscle. Hemofuscin varies from a light yellow to dark brown and doesn't react to chemical tests for iron. It occurs, as contrasted to hemosiderin, in smooth muscle. The total amount of iron deposited in the body at the time of death varies from 25 grams to 50 grams in comparison with the average normal of 3 grams.

The changes in the liver are usually striking. This organ is greatly enlarged, the majority of cases presenting livers weighing over 2000 grams. However, it has been observed that in about 10 per cent, the liver is smaller than normal. Grossly, the liver has a reddish tint and is finely granular. Microscopically there are deposits of hemosiderin in the liver cells and in the fibrous tissue with evidence of degeneration, producing a cirrhosis.

The pancreas is fibrotic and presents a reddish tint similar to that of the liver. The islands of Langerhans are reduced in number and exhibit fibrosis in about 80 per cent of the cases. The spleen varies in size, but is usually increased. There are deposits of hemosiderin and hemofuscin present but not as marked as in the liver. The gastrointestinal tract is affected by the pigment, but otherwise shows no definite changes. The heart is usually deeply pigmented with hemosiderin, but definite fibrotic changes are not often observed. The thyroids and parathyroids show marked pigment involvement with added degenerative and fibrotic alterations. The adrenal cortex contains much pigment. The anterior lobe of the pituitary

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From the Adams Clinic, Hibbing, Minnesota.

practically always contains deposits. The testes often show atrophic changes in the sperminal epithelium. In the skin there is an increase in the melanin which occurs in the deeper epidermis, whereas the corium harbors hemosiderin, mainly in the cells of the sweat glands. Hemofuscin is confined to the walls of the blood vessels.

The clinical features of the disease are primarily three in number; however, a single case may present any one, two, or three features or a combination of them. The initial symptom in each case may certainly vary. Sheldon states that pigmentation occurred first in 26 per cent of his cases.[8] Butt and Wilder noted its onset as an initial sign in 40 per cent of their series.[3] Diabetes as the first sign was noted by Sheldon in 25 per cent and other authors have found this also. Cirrhosis has been noted as the anlage in about 25 per cent of the cases. Chesner[5] reported a case with some interesting features; the disease occurred in a fourteen-year-old, which is unusual, and the patient did not have the skin pigmentation or diabetes; however, the liver and spleen were palpable. A severe hypochromocytic anemia of the iron deficiency type preceded the disease symptoms by six years. Diagnosis was made at autopsy, based on the finding of pigment cirrhosis of the liver and pancreas.

The skin pigmentation is seen in about 80 per cent of the cases and it appears in varying degrees from a diffuse bronzing to a slate-like metallic tint. The face, nipples, scars and extensor areas of the arms show the greatest color; however, the entire body may be pigmented. The intensity of the pigment may vary. Certainly as the disease progresses, the color will perhaps do likewise. With the use of insulin, the pigmentation may change in intensity. Humphrey[7] reported a case in which the pigmentation varied from light to dark. This he postulated might be due to the varying volume of water and glycogen storage in the superficial skin cells while the patient was under insulin treatment.

The diabetes once established has a tendency to become more severe and uncontrollable. Perhaps the patient becomes insulin resistant, but most likely the progressive degeneration of the pancreas is responsible. The glycemia is extremely labile, patients approaching coma on one day and victims of hypoglycemia the next. This cardinal variability might be due to the cumulative physiological action of the involved liver, adrenal, pituitary, and thyroid glands. Sheldon showed diabetes to be present in 70 per cent of his cases. Wilder observed it in 86 per cent of his cases.

The enlargement of the liver has been considered the most common entity, being present in more than 90 per cent of the cases according to Sheldon. Clinically, the liver is smooth and not tender on palpation, and occasionally one finds one lobe more involved than the other. Ascites has been observed in about 20 per cent of the cases. The spleen is enlarged, according to Sheldon, in 60 per cent of the cases.

Some of the less protean manifestations of the disease are interesting and bear mention. The influence of the disease on the sexual characteristics has been reported, and the changes in the male are noteworthy. Loss of hair, impotence, and atrophy of the testicles are characteristic. The basis of such changes might be explained by the inactivation of estrogens by the liver or by the infiltration of the anterior pituitary with hemosiderin.[4] Marked asthenia may be present and could be explained by the involvement of the adrenal glands. The neurological signs such as unsteady gait and loss of tendon reflexes are infrequently encountered.

The diagnosis is established by the integration of the symptoms and the following laboratory aids: intradermal test of Fishback,[6] skin biopsy, demonstration of hemosiderin in the urine and ascites fluid, and liver biopsy.

Case Report

J. N., aged forty-eight, was seen on February 18, 1948, about 4:30 P.M. with the following history. On February 17, he got up to go to work, but did not feel too well. He was slightly nauseated. He had very little breakfast and took his usual dose of protamin zinc insulin, 80 units, and went to his office. About 11 A.M. he came home and went right to bed. He refused food. He slept all day but was muttering in his sleep. His wife states that he would rouse to questions, but would go right back to sleep. At 4 P.M. she coaxed him to take a bowl of soup. He refused food during the night and the following morning had very little breakfast, but did not take insulin. When seen at home, he was drowsy, restless, irrational, complained of nausea and vomiting, and had a loose watery stool. His fever at home was 103.5°. He would answer questions rationally and intelligently, but if left alone for one or two minutes would doze off and begin muttering incoherently. He denied a cold. He was hospitalized at once.

Past history revealed jaundice in youth. First symptoms of any serious trouble appeared in 1934. Previous to that time, he had averaged 220 pounds in weight and had been very rugged. He played football, and was very active in sports while in school. In 1934, he lost 66 pounds in two months. At that time, he states that he was very tired and mentally confused. Diabetes and an enlarged liver were discovered at that time. He maintained a weight of 154 pounds for eight years on a diet and 40 units of insulin daily. He then became careless and again lost weight down to 145 pounds. At that time, in 1942, he came under the care of one of us (C. N. H.). When questioned about his color, he stated that he thought the change had begun to appear about 1934 and had steadily become more pronounced. The size of the liver apparently had not changed since 1934. At that time, 1942, he complained of pain in the lower one-third of the right thigh, which was present for six weeks. Previous to the onset of pain in the thigh, he had sacroiliac pain for one month. When the pain left the back, it migrated to the thigh. Diet and increase of insulin to 60 units corrected the pain and increased the feeling of well-being. Between 1942 and 1946, the blood sugar ranged from 133 to 322. In February, 1946, he developed a carbuncle on the neck. It then became necessary to increase his insulin to 80 units. In April, 1946, he developed a boil on the scalp. From then on to 1948, he took 80 units of protamin zinc insulin daily. He was next seen February 18, 1948, for his present illness.

His habits had been good since 1934, except for occasional carelessness about his diet. He had never been a heavy drinker. His father and mother were living and well. He was married and his wife and one child were living and well.

By occupation he sold oil, gas and accessories.

Examination revealed a well-nourished, adult man, forty-eight years of age. The hair was sparse on the scalp and body. The skin was a bluish color, but on the exposed surfaces of the body—face, neck, and hands—was almost bronze. There were a few spider nevi over the upper chest. The ears were normal. There was no cervical adenitis. The teeth showed no caries but there were quite a few missing as a result of extractions. The throat was moderately injected. The uvula was edematous. The heart was slightly enlarged to the left and downward. There was a faint mitral murmur, systolic in time, not transmitted, which had never been heard previously. The blood pressure was 120/65. The lungs presented no areas of consolidation; the respiratory excursions were full and free. There were a few scattered râles at both bases. There was rather more than moderate distention of the abdomen. The liver was enlarged and was palpated about 4 or 5 inches below the costal margin anteriorly, and about 2 inches laterally. The liver dullness also extended upward beyond the average margin. The edge was rounded and firm, but not tender. The spleen was palpable, but not tender. There was no tenderness or muscle-spasm present. There was no hernia. The genitalia were normal except that the testes appeared small. Chest x-ray by a portable machine revealed no consolidation.

The laboratory reports were as follows: hemoglobin 99 per cent, gms. 14.3, WBC 12,200; N. seg. 21, Seg. 65, Lymph 12, Mono 2. Blood sugar 266 mg. per cent.

Temperature on admission was 103°. The temperature ranged from 100.4 to 109 degrees on the last day of illness. Pulse on admission was 110; pulse elevation and respiration corresponded fairly well with the temperature range. Sedimentation rate 23 in a half hour and 27.3 in one hour. Spinal fluid clear, colorless; protein 44, Chlorides 698, Sugar 141. Urine 3 plus sugar, albumin trace, acid 5.5. No diacetic acid or acetone.

On February 19, râles at the base were slightly increased. They were fine and crepitant. The patient was very disoriented. There was still moderate distention of the abdomen, the legs and arms were sore. There were petechial spots on the left arm and shoulder. There was redness and tenderness of the left wrist and palmar surface. There was tenderness of the left knee with slight fluctuation and a floating knee cap. Active and passive motion of all extremities was painful. The patient admitted having sore throat three days previous to admission.

On February 20, there was marked disorientation, the patient was argumentative, the fever was lower, but the general condition was worse. The extremities were very painful. He objected strenuously to being moved. There were more petechiae and more redness of the left wrist. The blood sugar was 400 mg. per cent. Spinal fluid was normal. On this date, there was a murmur heard over the aortic area which had never been present before.

On February 21, the general condition was much worse. He was very drowsy; he would rouse to questions in the morning but roused with difficulty in the evening. His color was very poor and he was quite cyanotic. The râles at the base of both lungs had increased. The murmurs over the aortic area and the mitral area were softer. Both wrists were swollen and much more tender. The left knee was very tender. There was slightly more redness and swelling. There was a blood culture taken on this date.

On February 22, oxygen was started. The temperature curve rose steadily from 101 in the morning to 105 at midnight. He was very much worse. On the 23rd, his color improved under oxygen. There were no new petechial spots but those on the left arm and shoulder were larger and more numerous. There was some edema of the back. Cultures of the wrist and knee joints were taken on this date; no pus was found. The temperature and respiration rose steadily from 105 at midnight to 109 at 10:20 the next morning, when he expired.

Treatment of the patient was primarily symptomatic, and consisted in the use of penicillin in an attempt to control the infection. Insulin was prescribed in increasing doses in an attempt to control the hyperglycemia. Vitamins and parenteral fluids were used as supportive treatment. The diet was high in carbohydrates and proteins.

Post-mortem findings were: (1) hemochromatosis and cirrhosis of the liver, (2) hemochromatosis and fibrosis of the pancreas, (3) septic spleen, (4) cholelithiasis, (5) arteriosclerosis grade III of the aorta, (6) atrophy of the testes.

Mention should be made of nature's attempt to compensate for this extensive cirrhosis and the disturbance

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PEPTIC ULCER IN INFANCY AND CHILDHOOD
Report of Three Cases

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HOLT,[10] in 1913, from a study of ninety-five cases of duodenal ulcer in infants below the age of one year, found that of sixty-five cases in which the age was given, 70 per cent of the patients were between the ages of six weeks and five months, nine occurring in the newborn. In 1922, Paterson[14] discovered in the literature 100 cases of duodenal ulcer in infants, and contributed two of his own. Proctor,[15] in 1925, in reviewing 1,000 cases of gastric ulcer and 1,000 cases of duodenal ulcer, found that in sixteen of the cases of gastric ulcer and in twenty-six cases of duodenal ulcer symptoms had been present since childhood. Butka,[4] in 1927, reported a ruptured gastric ulcer in an infant on the fourth day of life. Shore,[19] in 1930, reported a fatal perforated ulceration of the stomach in a male infant twenty-two months old. In 1932, Selinger[18] reported three cases of peptic ulcer in children under twelve months of age. Foschee,[8] in 1932, reviewed nineteen cases of gastric ulcer in children. In 1933, White[22] reported two chronic duodenal ulcers in children. In 1934, Smythe[20] reported two perforated gastric ulcers in newborns who lived six and seven days. In 1935, Tashiro and Kobayashi[21] reported a case of perforated duodenal ulcer in a child of seven. In 1940, Burdick[3] reported eight cases of peptic ulcer occurring at the Children's Hospital, Washington, D. C., from 1932 to 1939 out of 21,231 admissions and two cases seen in private practice. In 1941, Bird, Limper and Mayer[2] collected 243 cases of peptic ulcer in children from the literature. In 1941 Logan and Walters[11] collected fifteen cases of chronic gastric ulcer which had been recorded since Foschee's report in 1932, and contributed one of their own. Firman-Edwards,[7] in 1941, reported a case of a six-month-old child with cirrhosis of the liver who expired following a perforated gastric ulcer. There was no evidence of von Gierke's disease in the liver. In 1942, Newman[13] emphasized the importance of roentgen examination of the gastrointestinal tract in demonstrating peptic ulcer as the cause of obscure abdominal symptoms in children and added six cases to the literature. C. A. Stewart,[5] in 1943, reported four instances of ulceration in the gastrointestinal tract during the neonatal period. In two of the infants multiple gastric ulcers coexisted with erythroblastosis fetalis. Schwartz and Halberstam,[17] in 1943, successfully operated on an eleven-month-old male infant with perforated duodenal ulcer. In 1943, Benner[1] reported eight cases of peptic and duodenal ulcer which had been seen in the course of about 500 routine autopsies on infants and children at the Colorado General Hospital. One case was remarkable because of the association of ulcer with possible rhubarb poisoning. Two cases of apparently healed ulcer were included. Guthrie[9] found nine peptic ulcers in the autopsy material in the Glasgow Royal Hospital for Sick Children, between the years of 1914 and 1941, in a series of 6,059 postmortems on children under the age of thirteen (Table I). In 1944, Meiselas and Russakoff[12] reported a case of a bleeding peptic ulcer in a two and one-half months old child who subsequently expired. Donovan,[6] in 1945, reported ten cases of gastric and duodenal ulcers in infants and children, from the Babies Hospital, New York. Hemorrhage occurred in six of the ten cases. Perforation and pyloric stenosis were also observed. Rosenberg and Heath,[16] in 1946, reported a case of a gastric ulcer with perforation in one of premature twin boys. In this patient vomiting began on the ninth day of life. Brown stools and dark vomitus began on the thirty-sixth day. He died on the fifty-fifth day.

The etiology of peptic ulcers in infants and children in the majority is obscure. Prematurity has been mentioned as a cause. Cases have occurred in association with erythroblastosis fetalis. Holt[10] has emphasized that the age distribution of "marasmus" and peptic ulcers is similar. There may be an association between the development of ulcers and the onset of hydrochloric acid secretion in the stomach. The acidity of the gastric juice reaches a maximum within forty-eight hours of birth, when it is equivalent to that of an adult. Thereafter, it falls rapidly and remains

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Presented at the North Dakota Pediatric Society meeting, Fargo, North Dakota, October 15, 1949.

low during infancy. Ulcerations have been reported in association with stenosis of the intestinal tract. They have also occurred during the course of hepatic disease, pancreatic disease, and erythroblastosis. Two cases have followed trauma, one following external trauma, and one following aspiration of the newborn respiratory tract. For years the association between severe systemic infection and peptic ulceration has been appreciated. Many organisms, including streptococci and tubercle bacilli, have been cultured from these ulcers. Extensive body burns are many times followed by peptic ulcers, probably because of the infection which is usually also present. Stimulation of the diencephalon will produce hyperemia of the gastric mucosa and will increase gastric motility, hypertonus and hypersecretion. In the adolescent group peptic ulcer may be a psychosomatic disease. It has been suggested[23] that there is a possible association between the anterior pituitary gland and peptic ulcer in adolescent boys.

TABLE I. CASES OF GASTRIC AND DUODENAL ULCERS OBSERVED IN 6,509 ROUTINE AUTOPSIES ON CHILDREN[1,9]

	Age	Sex	Diagnosis	Type of Ulcer
1.	2 days	Male	Pneumonia with Otitis Media	Duodenal Ulcer
2.	3 days	Female	Multiple Congenital Anomalies	Duodenal Ulcer
3.	3 days	Female	Hematemesis and Melena	Duodenal Ulcer
4.	5 weeks	Male	Melena and Hepatitis	Three Duodenal Ulcers
5.	2 months	Male	Pertussis with Pneumonia	Duodenal Ulcer
6.	10 weeks	Female	Melena and Otitis Media	Duodenal Ulcer
7.	10 weeks	Female	Frequent Vomiting	Duodenal Ulcer
8.	11 weeks	Male	Frequent Vomiting and Diarrhea for Two Days	Three Duodenal Ulcers
9.	3 months	Male	Marasmus	Two Duodenal Ulcers
10.	17 weeks	Male	Melena and Otitis Media	Duodenal Ulcer
11.	14 months	Male	Tuberculous Meningitis	Duodenal Ulcer
12.	3 years	Male	Rhubarb Poisoning	Duodenal Ulcer Massive Hemorrhage
13.	6 years	Female	Hemopneumothorax Following an Accident; Melena	Duodenal Ulcer
14.	9 years	Male	Tetanus	Duodenal Ulcer
15.	10 years	Female	Bronchopneumonia and Ruptured Appendix	Gastric Ulcer
16.	11 years	Male	Meningitis with Otitis Media	Duodenal Ulcer Massive Hemorrhage

TABLE II.

Age	Sex*		Type of Ulcer		Number Operated On	Symptoms		
	Male	Female	Duodenal and Pyloric	Gastric		Stenosing	Perforated	Bleeding
Newborn (0-14 days)	19	14	29	16	6	1	19	23
15 days-1 year	32	20	56	10	9	8	17	31
2-6 years	15	11	21	7	9	2	3	12
7-11 years	42	24	53	17	32	11	15	12
12-15 years	48	24	59	18	67	31	26	6
Totals	156	93	218	68	123	53	80	84

*In some of these the sex was not stated.

Ulcers[2] in the newborn, in whom the symptoms become outstanding within the first two weeks of life, have special characteristics. The great majority bleed seriously or perforate. In many the onset is precipitous without recognizable symptoms or signs. Except in a few cases neither clinically nor at autopsy is there evidence of intracranial injury or localized or generalized sepsis. The lesions are acute.

During the first twenty-four months of life beyond the newborn period, the nature of the disease changes. Although again the great majority of ulcers bleed grossly or perforate, there are often premonitory symptoms, such as refusal of feedings, evidence of abdominal pain, vomiting, occasional streaking of blood in the vomitus, sometimes occurring over a period of weeks or months before the onset of graver symptoms. Persistent pylorospasm or inflammatory or cicatricial pyloric stenosis is seen occasionally. Many of the patients are septic and marasmic.

Between the ages of two and six years recognized examples of peptic ulcer are very few.

As age advances beyond the seventh year, there is a rise in the number of cases recognized, with special accentuation on pyloric stenosis and perforation. Hemorrhage recedes into the background. Among the cases reported in this age group, the symptoms have often been present intermittently or continuously over a period of months or years.

Hemorrhage from stomach or bowel is the most characteristic sign of peptic ulceration in children. In the series of cases here reported, bleeding occurred in 48 per cent of the children under one year and in 29 per cent of the total series. Duodenal ulcer may cause spasm of the pylorus, so that the condition may suggest pyloric stenosis. Regardless of the age of the child, a complaint of epigastric pain occurring sometime after meals, particularly at night, relieved by the ingestion of milk or other food or by emesis, and accompanied by tenderness in the abdomen, should lead to a very strong suspicion of peptic ulcer. Indefinite abdominal discomfort, particularly if epigastric in situation, even if unaccompanied by other characteristic symptoms, may be caused by ulcer. Hyperchlorhydria is absent usually.

Pathologically, the ulcers seen in childhood are similar to those seen in adults. If they are chronic in type, the appearance in no way differs from that of chronic ulcers in adults. A striking feature in all acute ulcers is the absence of inflammatory reaction, the lesion being purely destructive. Duodenal ulcers invariably occur above the ampulla of Vater and are generally situated on the posterior wall.

Of 286 cases of peptic ulcer, 283 collected from the literature and three of my own, 218 were duodenal and pyloric and sixty-eight were gastric, a ratio of 3 to 1. Operations were performed in 123 patients. Indications for operation were pyloric stenosis, perforation, hemorrhage and uncontrollable symptoms (Table II).

Report of Personal Cases

Case 1.—P.L.Z. This patient was a white, male infant. The birth was apparently normal. The baby nursed normally and seemed to be doing well until the fifth day of life, when the abdomen became suddenly distended. At that time the child became cyanotic and very dyspneic. The temperature was 100.4° when the child arrived at the hospital. The child was in extremis when first seen. X-ray showed a large amount of air in the peritoneal cavity with the diaphragm displaced upward. The child expired one hour after admission to the hospital.

Postmortem examination showed a perforation of the upper end of the stomach through the greater curvature, through which gastric contents were escaping. The perforation measured 15 by 18 millimeters in diameter. The other abdominal organs were normal. There was partial atelectasis of both lungs.

Case 2.—T.E. This patient was a white male who was born one month prematurely. Birth weight was 5 pounds 2 ounces. On the second day of life he began vomiting bile. He passed meconium per rectum which contained squamous epithelial cells. The gastrointestinal x-rays showed a dilated bowel. On admission to the hospital he was an emaciated, jaundiced white male who had a feeble cry. There was moderate dehydration. Examination was essentially negative except for a distended abdomen. Chest x-ray was negative. The K.U.B. film showed a dilated large and small bowel with fluid levels. The baby was Rh negative. Hemoglobin was 116 per cent, and the white blood cell count, 8,200. The urine showed 3-plus albumin with 6 to 10 red cells and no sugar. Barium enema showed a stenosis of the sigmoid.

A transverse colostomy was done on the fourth day of life. The patient did well until the twentieth day of life. He was maintained with blood transfusions and given formula orally. The distal colon was irrigated with saline and mineral oil. The colostomy worked well at all times. He began passing blood from the proximal colostomy on the twenty-third day of life. Shortly after this he became distended and expired suddenly. Postmortem examination showed a perforated duodenal ulcer and a stenosis of the sigmoid.

Case 3.—A.B. This patient was a fourteen-year-old white male who had been complaining of abdominal pain since he was seven years old, and did not care to eat, especially at breakfast. Shortly after the pain began he had a tonsillectomy and adenoidectomy. In about six months he began losing weight and the pains seemed more severe. He would sometimes vomit intermittently for a month. He seemed to crave milk and chocolate. When the pain became severe, he would lie down, as he could not stand. His appendix was removed when he was eleven years old, without influencing the course of his illness. By the time he was twelve, he had become very nervous and would eat very little because he said "his stomach did not feel like it needed food." The pain continued until when first examined he had been vomiting for two months. He never had melena or hematemesis.

The family history was interesting in that both mother and father felt they had stomach trouble.

The patient was a well-developed, fairly well-nourished, white male. The temperature was 99°. Weight was 73 pounds. Blood pressure was 100/70. The skin was moderately dehydrated, but there was no general glandular enlargement. Head and neck were normal. The fundi were normal. Ears, nose and throat were normal. The heart and lungs were normal. The abdomen was diffusely tender. Genitalia were normal. Rectal examination was negative. Extremities were normal. Neurological examination was normal. Accessory clinical findings: hemoglobin, 88 per cent; urine normal; white blood cell count, 9,050. Stool specimens were negative for occult blood on four occasions. Intravenous pyelograms were normal. Gastrointestinal x-rays showed the duodenal bulb to be markedly deformed, with an ulcer crater in the center of the bulb and a second crater in the distal portion of the bulb. The patient fainted twice during the examination. Analysis of the gastric content showed free hydrochloric acid of 23 degrees and combined hydrochloric acid of 15 degrees.

He was treated with bed rest, small blood transfusions, 1:5,000 atropine sulfate, Amphojel, multiple milk feedings and a bland diet. On discharge from the hospital his weight was 80 pounds. The gastric analysis at that time showed free hydrochloric acid of 28 and combined hydrochloric of 14 degrees.

On his last examination three months after his admission to the hospital, his weight was 85 pounds, and the hemoglobin was 81 per cent. He was feeling very well and had no complaints. X-rays at this time showed some irritability and deformity of the duodenal bulb, but no definite ulcer crater was noted.

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This paper is dedicated to Dr. W. C. Davison, Dean of the Duke University Medical School, in appreciation of his counsel and guidance.

MUCIN-ALUMINUM HYDROXIDE-MAGNESIUM TRISILICATE

"Mucotin"-Harrower.—An antacid mixture of gastric mucin, dried aluminum hydroxide gel, U.S.P. ($Al_2O_3.xH_2O$), and magnesium trisilicate, U.S.P. ($2MgO.3SiO_2xH_2O$), containing the labeled amounts of these ingredients.

Actions and Uses.—A mixture of histamine-free gastric mucin, aluminum hydroxide and magnesium trisilicate has been found to be an effective combination for oral administration in the control of symptomatic gastric hyperacidity and as an adjunct in the treatment of peptic ulcer. Gastric mucin has been shown to impart to the mixture a more distinct protective coating effect on the gastric mucosa than can be demonstrated with the use of antacids alone. Gastroscopic studies indicate that the mucin-antacid combination definitely coats the ulcer crater and may remain in the stomach for over an hour after instillation of the mixture. The antacid effect of the rapidly reacting aluminum hydroxide and the more slowly but prolonged reacting magnesium trisilicate, imparts to the mixture the advantages of both these antacids. The presence of magnesium trisilicate is also believed to counteract the constipating effect of the aluminum hydroxide but the available evidence on this point is not conclusive.

Dosage.—There is as yet no definite evidence by which to determine the optimum exact proportions of the antacids to be used in the mixture, but observations thus far indicate that best results are obtained with preparations containing approximately 10 per cent of gastric mucin. A ratio of 1:1.5:2.75 for gastric mucin-aluminum hydroxide-magnesium trisilicate has been found to give good results. A tablet preparation of these proportions containing gastric mucin 0.16 Gm., dried aluminum hydroxide gel 0.25 Gm. and magnesium trisilicate 0.45 Gm. is recommended in doses of two tablets every 2 hours. The tablets should be well chewed and no fluids taken during the following half hour.

THE HARROWER LABORATORY, INC., GLENDALE 5, CALIF.

Tablets Mucotin: Each tablet contains gastric mucin 0.16 Gm. dried aluminum hydroxide gel 0.25 Gm. and magnesium trisilicate 0.45 Gm.—JAMA, May 7, 1949.

History of Medicine In Minnesota

MEDICINE AND ITS PRACTITIONERS IN OLMSTED COUNTY PRIOR TO 1900

NORA H. GUTHREY
Rochester, Minnesota

(Continued from the December issue)

There follows a chronological roster, essentially accurate, of the medical staff of the Second Minnesota Hospital for Insane (Rochester State Hospital) from 1879 to 1899, inclusive:

Jacob Eton Bowers	Superintendent	Jan. 1, 1879—Oct. 1, 1889
William Alonzo Vincent	Assistant Physician	Mar. 1, 1881—Aug. 1, 1883
Alexander Brodie Cochrane	Assistant Physician	Aug. 1, 1883—Dec. 1, 1884
Homer Collins	Assistant Physician	Dec. 1, 1884—Oct. 1, 1889
Robert McEwen Phelps	2nd Assistant Physician	Mar. 1, 1885—Oct. 1, 1889
	1st Assistant Physician	Oct. 1, 1889—Oct. 1, 1890
	Assistant Superintendent	Oct. 1, 1890—Sept. 12, 1912
J. Robert Eby (med. student)	Apothecary	June ?, 1888—Oct. ?, 1889
Harry Raymond Randall	Assistant Physician	Jan. 1, 1889—Oct. 1, 1889
Arthur Foote Kilbourne	Acting Superintendent	June 1, 1889—Nov. 1, 1889
	Superintendent	Nov. 1, 1889—Nov. 30, 1934
Lloyd Anson Faulkner	Assistant Physician	Oct. 1, 1889—Nov. 1, 1889
Nathaniel Morton Baker	Assistant Physician	Oct. 1, 1889—May 1, 1893
Sara V. Linton (Mrs. R. McE. Phelps)	Assistant Physician	Oct. 1, 1889—Feb. 1, 1898
Frederick Eduoard Franchere	Assistant Physician	Oct. 1, 1891—July 1, 1892
Eric Olonzo Giere	Assistant Physician	July 1, 1892—Oct. 1, 1892
George W. Moore	Intern	July 1, 1892—Oct. 1, 1892
	Assistant Physician	Oct. 1, 1892—July 1, 1893
—— Jackman	Assistant Physician	July 1, 1893—No record
Cyrus Bowers Eby	Intern	July 1, 1893—Dec. 9, 1893
	Assistant Physician	Dec. 9, 1893—Feb. 1, 1899
H. H. Herzog	Assistant Physician	Dec. 1, 1893—Feb. 1, 1899
W. H. Withrow	Apothecary	Dec. 1, 1893— 1898?
Mary Elizabeth Bassett	Assistant Physician	July 19, 1895—Feb. 28, 1896
—— Cheever	No Record	1896?
Rose Anne Bebb	Intern	July 1, 1897—Feb. 1, 1898
	Assistant Physician	Feb. 1, 1898—Mar. 3, 1900
Abraham Franklin Strickler	Assistant Physician	May 16, 1899—June 10, 1899
	Assistant Superintendent	June 10, 1899—July 10, 1899
Ernest Z. Wanous	Assistant Physician	May 19, 1899—July , 1899
	Assistant Superintendent	July , 1899—Feb. 1, 1902
Oscar C. Heyerdale	Assistant Physician	July 13, 1899—Aug. 1, 1912
	Assistant Superintendent	Aug. 1, 1899—July 1, 1937
Charles L. Chapple	Assistant Physician	Aug. 31, 1899—April 1, 1911

St. Mary's Hospital.—The first general hospital in Olmsted County and a large surrounding region, St. Mary's Hospital is believed to owe its inception to the tornado of August 21, 1883, which destroyed much of north Rochester, killed thirty-five persons and injured more than fifty others. All unaffected persons in

Rochester, physicians and laity, rallied to aid the sufferers, who were housed temporarily in private homes, in hotels, at the Academy of Our Lady of Lourdes and elsewhere. On the day after the storm a hospital was improvised in Rommel's Hall, in central Rochester, and Dr. W. W. Mayo was appointed physician in charge, and his son-in-law, Dr. D. M. Berkman (a veterinarian), an able organizer, was appointed steward. On the same day Mother Mary Alfred, Superior of the Sisters of the Third Order of St. Francis of the Congregation of Our Lady of Lourdes, volunteered aid in nursing the injured and delegated four sisters to that service.

To Mother Alfred the catastrophe gave so clear a vision of what a permanent institution for care of the sick could mean to the community that, not long afterward, she told Dr. Mayo that the sisters intended to establish and maintain a hospital in the city, and asked him to help plan the hospital and to take charge of it. The doctor tried to dissuade Mother Alfred: Public opinion would be adverse, since hospitals at that period were not in good general repute; the town was too small to support a hospital; the expense of construction and equipment would be great; and he himself, then in his seventieth year, was too old to assume the responsibility she asked. Mother Alfred nevertheless proceeded quietly with plans to raise the necessary money.

In 1887, Dr. Mayo having consented to serve, a tract of nine acres was bought as the hospital site, a mile west of the city post office and just outside the city limits at the end of Zumbro Street. In the next two years Dr. Mayo and his elder son, Dr. W. J. Mayo (C. H. Mayo was still in medical school), traveled widely to study hospital planning and management. In August, 1888, Joseph D. Billingsley, of Winona, contractor, began the construction. In the spring of 1889 George Weber and Granville Woodworth, of Rochester, assumed the contract, and in the autumn of that year completed the work. During the period of construction it was announced that the hospital facilities would be available to all physicians of good standing in the region, that the sick would be received regardless of race, creed or financial condition and that they might choose any physician they wished. When the building was nearing completion, plans were made for a ceremonial opening of the hospital on October 1, 1889, but as it happened the beginning was simple. On September 30, 1889, St. Mary's Hospital admitted its first patient, who was in need of surgical aid for cancer of the eye, and on that morning Dr. W. J. Mayo and Dr. C. H. Mayo performed the operation, with Dr. W. W. Mayo administering the anesthetic.

On the afternoon of October 8 the Olmsted County Medical Society held a meeting at the hospital, at which were present the members of the society, some of whom were physicians from counties neighboring Olmsted County, and invited guests. At the meeting Dr. W. T. Adams, of Elgin, Dr. A. W. Stinchfield, of Eyota, and Dr. H. H. Witherstine, of Rochester, were a committee who drafted and presented the following resolutions, which were accepted unanimously:

> WHEREAS, the Sisters of St. Francis have erected this beautiful and commodious hospital in the City of Rochester and we, the physicians of Olmsted County and adjoining counties, represented in the Olmsted County Medical Society, upon examination find it to be one of the finest and best arranged hospitals in the state, Therefore,
>
> Resolved, that it is worthy of the support and patronage of the medical fraternity of this vicinity.
>
> Resolved, that much is due to Dr. W. W. Mayo for his valuable suggestions with reference to the details of the hospital.

The ceremony of blessing the hospital was held on October 24, 1889, in the presence of a few invited citizens.

The new hospital was a three-story building of red brick with rough stone trim. It contained two ten-bed wards, one three-bed ward, one semiprivate room and two private rooms, a total capacity of twenty-seven hospital beds. Modern conveniences, which at that time were almost unknown in Rochester, were lacking. Four Sisters of St. Francis constituted the administrative and nursing staff and, frequently, the maintenance staff. Dr. Mayo and his sons were the physicians in charge. Miss Edith Graham (later Mrs. C. H. Mayo), of Rochester, the first trained nurse in the city, who had been graduated that year from the Woman's Hospital of Chicago and who was employed by the Drs. Mayo in their offices, gave the sisters lessons in professional nursing and became the first woman anesthetist at St. Mary's Hospital.

Not long after the hospital was established, Dr. W. W. Mayo began to reduce his professional activities, and he soon relinquished the chief responsibility to his sons. Until 1892 these two, "the greenest of a green crew," as they afterward described themselves, carried all medical and surgical services alone; in surgery, turn about, each acted as assistant to the other. They visited hospitalized patients early in the morning, operated from 7:30 a.m. or earlier until 1 p.m. or later, in the afternoon held consultations at the offices downtown, and were on call, and often at the bedside of patients, all night. In February, 1892, Dr. A. W. Stinchfield came from Eyota to join the Drs. Mayo in practice, in offices and hospital, and in the spring of 1894 Dr. Christopher Graham, of Rochester, recently graduated in medicine, became a member of the group and the first intern at St. Mary's. For three years these five physicians were the hospital staff. By 1899 the group included nine physicians.

For thirteen years Dr. W. J. Mayo and Dr. C. H. Mayo were the only surgeons at St. Mary's Hospital. When the hospital opened, the brothers, grateful to the Sisters of St. Francis for unique opportunity, declared that they never would "hold the knife outside St. Mary's Hospital," and they kept their word. Only on occasion of emergency or when they gave aid as surgeons at the state hospitals for insane at St. Peter and Rochester, did other operating rooms know them.

In its first three months, in 1889, St. Mary's Hospital received sixty-eight patients. There were 301 admissions in 1890 and 315 in 1891. The annual registration continued to increase gradually until, in 1899, the hospital received 938 patients. It is recalled that some months before the hospital building was completed, Dr. C. H. Mayo optimistically prophesied to Mother Alfred that in time the hospital would "get patients from all these towns around here," and that Mother Alfred hopefully but somewhat doubtfully agreed. Within three years patients were coming from Illinois, Kansas, Michigan, Minnesota, Missouri, Montana, Nebraska, North Dakota, South Dakota, New York, Ohio and Wisconsin. Within twenty years they were coming from nearly every state of the Union and from every continent of the world. In its first ten years two major additions were made to the hospital building. Since 1900 there have been six great additions, exclusive of St. Mary's Isolation Hospital, and corresponding expansion of services. In 1918 the sisters purchased the Lincoln Hotel, remodeled it and converted it into an isolation unit, which was opened as St. Mary's Isolation Hospital on June 14, 1918. Near St. Mary's, but not an addition to the hospital buildings proper, the unit provided additional hospital space and made possible an important extension of service.

Although from the beginning St. Mary's Hospital met with phenomenal success and usefulness as a self-supporting institution, its earliest years were difficult. At the time the hospital was planned, and when it was opened, hospitals were regarded by the general public as last resorts for the homeless and the destitute and were classed with prisons, insane asylums and county institutions, so that most persons would not consider entering a hospital as patients. To increase the difficulty, the project at first did not have the endorsement of all of the Sisters of St. Francis, nor of the Catholic community, who were in the minority in Rochester. Sectarian feeling was high, and there was hostility toward the hospital on the part of certain Protestants of the city. The situation was made more disagreeable by a wave of organized anti-Catholic propaganda, of the American Protective Association, that was sweeping the country at that time, and residents of the locality were either partisan or conservative. Most of the local physicians, although they esteemed the Mayos personally, were not inclined to associate themselves with a doubtful venture, and consequently an attempt to organize a general medical staff for the hospital was a failure. In addition, there were Catholics, and especially Catholics who had relatives in the medical profession, it is said, who felt that the hospital should not be staffed by Protestant physicians. It was even suggested that the hospital should be closed. Among both Catholics and Protestants, however, the close personal friends of Mother Alfred and of Dr. W. W. Mayo and his sons, knowing the sincerity of purpose with which the hospital had been planned and built, remained steadfast in their friendliness towards the undertaking.

In the early nineties, when the first addition to the hospital was being projected, a second wave of organized propaganda swept over the Northwest, and because of it the early opposition to St. Mary's was revived. The hospital once more was criticized as a Catholic agency and patients were advised not to go there for treatment. In Rochester several Protestant ministers and their congregations entered into the campaign. Homeopathic physicians, endorsed by the opposing ministers and congregations, in the autumn of 1892 opened a new hospital, the Riverside, which was received with enthusiasm. When Dr. W. J. Mayo and Dr. C. H. Mayo, faithful to St. Mary's Hospital, refused to become associated with the new hospital or to operate there, they again became the subjects of severe criticism, which again they accepted without comment. The local regular physicians of the region during this period remained essentially neutral toward St. Mary's and took no part in the management of the new hospital. At the end of three years the Riverside Hospital closed and sectarian opposition to St. Mary's ended.

Gradually the public came to appreciate the worth of St. Mary's Hospital, and physicians of the region other than the Drs. Mayo began to avail themselves of the privilege of bringing in their patients. Some of the patients who were brought could have been cared for satisfactorily at home, however, and these needlessly occupied hospital beds. From time to time others who had been exposed to contagious disease were admitted inadvertently, and frequently moribund patients, were brought in. The lack of space for the seriously ill, the worry and difficulty of dealing effectively with contagious disease, and the increase in the annual hospital mortality, not great but a cause for anxiety, after a few years caused the sisters, about 1895, to take the courageous step of establishing a new ruling: that the facilities of the hospital still should be available to all physicians in good standing, but that no patient should be admitted who had not been examined by one of the Drs. Mayo. The rule was carried out tactfully, the Drs. Mayo simply assuring the sisters and themselves that the privileges of the hospital were not abused and that its welfare was not endangered.

St. Mary's Hospital opened as a general hospital, but the influx of surgical patients and the lack of room for them soon caused the sisters to change the institution to an exclusively surgical hospital until sufficient space could be provided for general hospital work. It was not until 1914, after six additions had been made to the building, that there was marked increase in facilities for the medical treatment of patients in the hospital.

In a booklet, *A Souvenir of Saint Mary's Hospital,* issued by the sisters in 1922, the following dedication appears: "To the memory of Mother Mary Alfred, O.S.F., Foundress of Saint Mary's Hospital, and of William W. Mayo, M.D., who directed and organized the foundation, this volume is affectionately dedicated." Sister Mary Hyacinth was in charge of the hospital until Mother Mary Alfred was appointed superintendent on November 5, 1889. Sister Mary Hyacinth replaced Mother Mary Alfred on August 28, 1890. Sister Mary Joseph, who succeeded Sister Hyacinth, on September 9, 1892, guided St. Mary's Hospital until her death on March 29, 1939, when Sister Mary Domitilla became superintendent.

The progress of St. Mary's Hospital has continued without interruption (1949), as has its relationship with the Drs. Mayo and their associates, a group which since 1914 has been known officially as the Mayo Clinic.

The Riverside Hospital.—The Riverside Hospital, mentioned earlier in this history, functioned in Rochester from November, 1892, into September, 1895. The hospital was established by Dr. W. A. Allen, an esteemed pioneer homeopathic physician who settled in Rochester in 1872, and Dr. Charles T. Granger, a native son of Olmsted County. Dr. Granger was graduated with distinction from the Hahnemann Medical College of Chicago in March, 1892, was licensed in Minnesota after passing a creditable examination, and in April entered into partnership with Dr. Allen. In July, 1892, the two doctors bought a large residence on Line Street, East Rochester, remodeled it and equipped it as a hospital, modern in its day, and employed a competent nursing staff. The hospital was well received by the press and by the public, and its wards, medical and surgical, soon were filled with patients. As was the custom in that period, an occasional patient published in a local newspaper an expression of gratitude for the good care received.

A group of Rochester women, many of them of the Universalist congregation, organized the Riverside Hospital Aid Society, to help supply equipment for the wards and to prepare surgical dressings. In March, 1894, a group of 175 friends of the hospital surprised Dr. Allen with a social gathering on his sixtieth birthday and presented him with a large new homeopathic medicine case.

By the summer of 1895 the operation of the hospital had become impracticable. In the middle of September Dr. Allen, then mayor of Rochester, announced that he was moving to Saint Paul, to enter practice with Dr. O. H. Hall, late of Zumbrota, that he would leave his local practice in the hands of Dr. Granger, but that he would return to Rochester each week in order to oversee construction of the new city sewer, which was under way.

On September 27, 1895, the *Rochester Post* stated that because of Dr. Allen's departure it had been decided to close the Riverside Hospital, which henceforth would not be open for the reception of patients. In March, 1896, Dr. Allen resumed residence and practice in Rochester. After August, 1896, he and Dr. Granger were not in partnership.

The Beginnings of the Mayo Clinic

The Mayo Clinic was not established. It is a development that had its beginnings in the private general practice of one competent pioneer physician and surgeon, Dr. W. W. Mayo, who came to Rochester, Olmsted County, in the spring of 1863. From a private practice there grew a private group practice in which individualism in co-operative form was fostered and in which it has been maintained.

Dr. W. W. Mayo came to Rochester from Le Sueur as examining surgeon on the

Enrollment Board of the First Congressional District of Minnesota. When he left the board two years after his appointment, he opened an office on Third Street for private practice. In the next twenty years he changed his office location some seven times and on several occasions entered into partnership for medical practice with one local practitioner or another. These associations were short lived. From the beginning he won the confidence of laity and profession and gradually built up a practice which by the early eighties was one of the largest in southeastern Minnesota.

In May, 1883, shortly before his elder son, Dr. W. J. Mayo, returned home from medical school to begin practice with him, Dr. Mayo established offices over the drug store of George Weber, on the corner of the then Main Street and Zumbro Street, where the C. F. Massey Company's department store now is. In the next thirteen years there were, at intervals of about two years, extensive renovation, enlargement and re-equipment of the offices, to meet the requirements of the rapidly growing practice. A major change was made just before Dr. C. H. Mayo came home from medical school to join the family team, in 1888, and comparable changes were made in 1892, when Dr. A. W. Stinchfield became a partner, and in 1894, when Dr. Christopher Graham joined the group. In 1893 equipment was improved by addition of an expensive Leitz microscope, imported from Germany, which was used in a small upstairs room. In 1896 the *Olmsted County Democrat* gave an enthusiastic description, under the heading, "Complete Offices," of the quarters of the Drs. Mayo, Stinchfield and Graham, who were then occupying additional space both on the ground floor and upstairs, and stated that Weber and Heintz, whose drug store adjoined the offices, also had increased their space to make room for their prescription department. In 1898 Dr. M. C. Millet and Dr. Gertrude Booker joined the Mayo group. On November 29, 1900, the firm moved into quarters that had been especially created for them on the ground floor of the new Masonic Temple, diagonally across the junction of Zumbro Street and Main Street from the former offices. There were now general reception rooms, a reception room and library, "for visiting physicians who have come here with cases or to attend clinics at St. Mary's," a clerical and business office, consulting and examining rooms for the staff physicians, a dark room for "eye cases," and a small laboratory under the charge of Dr. Isabella Herb, who had begun work in January, 1900, as pathologist and anesthetist at St. Mary's Hospital. In this laboratory, routine tests of blood, urine and sputum were made. There was an x-ray room, which was not put into active use, however, until Dr. H. S. Plummer joined the group in 1901. In the fourteen years of the firm's occupancy, the offices were enlarged within the limits of the Masonic building and by the use of detached rooms in buildings near by.

It is important to note the fact that Dr. W. W. Mayo and, in due time, his sons and later associates scrupulously maintained office hours, and that by so doing they built up a large office practice—this in a period when the average physician maintained an office only as a starting point for his daily rounds of visiting patients in their homes.

In his early practice Dr. W. W. Mayo performed surgical operations in the homes of his patients, as was the custom of the time. By the late seventies he was utilizing rooms in one of the small hotels of Rochester for surgical operations and for postoperative care of patients from a distance, who by then were coming to him in considerable numbers. In the eighties, as stated earlier, he had a small private hospital of eight or nine beds in the home of a Mrs. Carpenter, a practical nurse in north Rochester. He was recognized in those years as a versatile and courageous surgeon, and he occasionally invited interested physicians from neighboring towns and from Saint Paul and Minneapolis to observe surgical operations, especially ovariotomy. Those occasions were the first surgical clinics held in Rochester, although they were not called clinics. After the sons joined their father, the surgical practice especially increased. They had a natural bent for surgery. They were eager for new knowledge, and they traveled, alternately, to study and to observe the work of other surgeons, in Chicago and in Boston, New York, Philadelphia and elsewhere. In those early years Christian Fenger, Arpad C. A. Gerster, Robert Weir, William T. Bull, Frederick Lange, Robert Abbe, William W. Keen and Joseph Price and many others taught them much. Soon they traveled abroad. They attended meetings of medical societies, local, regional, national and international, and early began to contribute reports and papers to the programs and to medical journals.

By 1890 many local physicians were coming to observe the surgical work of the Mayo brothers. In the newspapers of southeastern Minnesota of the nineties are to be found little items to the effect that Dr. ———, of Eyota, or Plainview or Wabasha, for example, or a group of doctors, had spent a day or several days in Rochester "attending clinics at St. Mary's" or "observing operations at the Drs. Mayo." In these years physicians from near-by states began to come, bringing patients and staying to observe the surgical clinics. Drs. A. J. Oschner and J. B. Murphy, of Chicago, were among the first visitors to come from large cities. Well before 1905 there were physicians from the East, and from Europe, among the observers and among the personal friends of members of the firm. Evidence of nation-wide recognition of the work in Rochester is found in the unanimous election, in 1905, of Dr. W. Mayo to the presidency of the American Medical Association. Visiting physicians in Rochester began to speak of the Mayos' clinics, of the Mayos' clinic at St. Mary's Hospital, and soon of the Mayo Clinic. St. Mary's probably was the first, as early as 1899, to refer to "clinic patients."

By the early or middle nineties, surgery, at first one part of a general practice, had become the predominant part of the Mayos' work, and it so remained for nearly twenty years. In 1904 only fourteen patients were treated medically at St. Mary's Hospital, which had opened in 1889 as a general hospital. As stated earlier, it was not until 1914 that special provision was made for the medical care of patients in the hospital. That year marked the increasing interest of the Drs. Mayo and their associates in the science and art of internal medicine and the beginning of continuous development of all facilities for the medical care of hospitalized patients.

The educational work in medicine and surgery, which since 1915 has been carried on by the Mayo Foundation for Medical Education and Research, affiliated with the University of Minnesota, began in the early nineties when a few medical students, usually local young men, spent their summer vacations at St. Mary's, observing operations and working as orderlies and as volunteer helpers in the little laboratory. Perhaps the first graduate observer of long attendance was Dr. W. A. Chamberlain, of St. Charles, who in 1898 spent several months in Rochester. Gradually the Drs. Mayo took in young graduate physicians as clinical helpers and as assistant surgeons, training them carefully themselves. For some years these men were known as interns, externs, and assistants. It was in 1906 that weekly staff meetings were inaugurated by Dr. H. Z. Griffin, who had joined the Drs. Mayo that year. These meetings and resulting and related special staff conferences and seminars have had an important part in the growth of medical education in the clinic and the foundation.

(To be continued in the February issue)

F. J. Elias, M.D.
President, Minnesota State Medical Association

President's Letter

1950

ORDINARILY a calendar doesn't mean much to a physician. Except for seasonal complaints—the spring epidemics, the late summer allergies, and the many hazards that winter brings—the physician's life is dictated more often by his wrist watch than his calendar. But, like everyone else, physicians on January first are jolted out of their routine into an evaluation of the year past and predictions and plans for the year ahead.

The Minnesota State Medical Association can look back on 1949 with satisfaction. It has been a good year. We have been able to distinguish our sociological, as well as our medical and scientific responsibilities, and to minimize neither. This has come about through the devoted and high-principled leadership that the Association was fortunate enough to gain, and through the active co-operation of the membership.

In 1950, I feel sure, we can expect continued attempts to negate recognition of medical advances and to turn medical care into a commodity. This to be sold or doled out, according to nebulous plans, made both inside and outside the government, by individuals who assume that an interest in the subject—either sincerely humanitarian or hypocritical and selfish—and/or their status as *recipients* of medical care are all the qualifications they need to be medical experts.

In addition, then, to our primary responsibility to the patient, to provide him with increasingly better care, we are faced with usurpation of medical practice that would transform it from a profession into a business.

It is our prime obligation to save ourselves and our patients, and medicine and the public of the future, from this eventuality. In accomplishing this objective, we are fulfilling more than one requirement of good citizenship. For the physician, in convincing his fellow men that it is to their best interest to reject proposals contrary to the American way, must mingle more in his community than, perhaps, has been his custom. In fending off injurious legislation, the doctor will find himself marching regularly to the polls and aiding in the selection of legislators, not politicians.

It is an honor to have been elected to the highest office of the Minnesota State Medical Association during this time of crisis, when the health of the nation is precariously balanced between progress and deterioration, and when the action we take, as individuals and members of an association, may well influence the choice.

My best efforts are pledged to maintaining the ethics and standards of the profession and in interpreting them to the people of Minnesota in terms of their own health and happiness.

F. J. Elias.

President, Minnesota State Medical Association

◆ Editorial ◆

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

THE YEAR 1950

IT IS difficult, in facing the new year, to be complacent about the state of affairs in our own country and the world in general.

The estimated federal deficit of 5.5 billion dollars is disconcerting to one who believes in the balancing of budgets. With high production and employment we should be paying off on our huge national debt rather than further increasing it. It is obvious that the only way to balance the budget is by increasing taxation or reducing expenditures. Economists say that high taxes have already resulted in disappearance of risk capital which has resulted in lending by the government rather than by private capital. Taxation has well nigh reached the point beyond which there will be diminishing returns. While visible taxes are burdensome, the invisible ones which are present in everything that is bought are insidious, in that the public is not so conscious of their existence and is not sufficiently spurred on to demand government economy. Sufficient demand on the part of the public for the need of government economy is the only influence which will affect Congress and our State legislatures.

Ways have been pointed out for effecting economy in government; the Hoover report for one. Its recommendations have not been followed. Federal subsidy of states for activities which are state responsibilities foster extravagance. The temptation for the states to match federal subsidies seems well nigh irresistible. The citizens of each state are paying for both expenditures. Price pegging by the government, while it artificially assists one group, only increases the cost of living and taxes. The more the artificial regulation of our economy, the greater the number of government employees needed.

Our own people are sick and tired of war. How much more so must be the people of the rest of the world. And still war and rumors of war are in the limelight—due almost entirely to communism. The disturbing element we call communism, and it is so self-named, actually consists of minority groups headed by the most diabolic despots the world has ever known; despots who have acquired control of governments and maintain themselves in power by force, intimidation and deceit. Every effort is made to destroy all religion, and love for God and fellow man is simply absent. There can be no room in our country for communists whose avowed purpose is to destroy our democratic form of government by force and intrigue.

We are among those who see little distinction between the aims of communism and socialism. Both aim towards the equal distribution of this world's goods and, therefore, the stifling of incentive and the suppression of industry. A real communism has never existed. We have a typical example of what near socialism can do to the economy of a nation like England. The recent reversal of public opinion away from socialism in New Zealand and Australia is indicative of what can happen in a democratic country and of what may happen in England. Must we go further into socialism before we realize that, human beings being what they are, it just will not work?

We are among those who believe that right will triumph in the end. Our country has muddled through many a crisis, and we believe we shall come through our present difficulties. Communistic régimes, based as they are on ruthless force, just cannot continue indefinitely. Citizens of all countries are much the same in their make-ups and, although temporarily misled or dominated by false leaders, have the same hopes and desires. It is our fervent wish that the year 1950 may show evidence of wisdom in the conduct of our government and more justice and peace throughout the world.

ISOLATION AND QUARANTINE REQUIREMENTS

HEALTH department regulations for isolation and quarantine help in the control of communicable disease but the relative importance of quarantine should be kept in mind to avoid neglecting more fruitful measures. These include diagnosis, treatment, and disinfection concurrently and terminally; reporting and epidemiological investigation to discover sources of infection, carriers, missed and suspected cases; individual protective measures such as vaccination and immunization against smallpox, diphtheria, whooping cough, tetanus, typhoid, and other diseases; community preventive measures such as sanitary water supply and sewage disposal, and pasteurized milk and cream; and most important public health education to stimulate people to take advantage of preventive medicine before disease develops. Quarantine and isolation requirements may benefit the ill patient more than the community by reducing his chances of contracting cross infections.

Regulations must be based on knowledge of the disease in question and they change as our knowledge changes. As in other medical fields, however, there occasionally appears the danger of the more science, the less art. Considerable emotional content is linked to quarantine procedures, whose origins date from early plagues, pestilence, superstitions, and hysteria. This partly accounts for slowness to change regulations.

Today public opinion as to the reasonableness of quarantine is still important for practical application. An acceptable compromise between the dictates of science and common sense, therefore, is frequently the result when rules are adopted. Because conditions vary so greatly throughout the State as to available personnel and interest for operating public health programs, the regulations of the State Board of Health set minimum requirements only and local boards of health have authority and are encouraged to add whatever additional precautions seem necessary.

In recent years quarantine regulations have become more liberal and, happily, more uniform in all states. Increasingly consideration has been directed to scientific essentials, clarifying the handling of those persons definitely infected, the cases and carriers; those possibly infected, the contacts; and the general community. Minnesota's regulations have followed this trend, sometimes in the teeth of considerable public feeling against liberalization, and sometimes only after some pushing from others for more lenient rules.

Two of the acute communicable diseases, scarlet fever and poliomyelitis, illustrate these trends. Scarlet fever in recent years has been mild, and responsive quickly to newer methods of treatment. Experience has demonstrated the futility of quarantine in stopping the spread of streptococcal respiratory infections, yet joined with other measures for control, some regulation is accepted as necessary by everyone. Minnesota now requires isolation of the patient for the duration of illness, with a minimum of seven days from onset. Close contacts, if children, are quarantined for the same period, while adult contacts if well are not restricted unless local authority so decides.

In poliomyelitis, regulations have admittedly not controlled the disease while conversely impeding the best use of hospital facilities. Following a national conference in 1949, state health authorities everywhere, including Minnesota, are modifying their regulations so that patients with poliomyelitis are isolated for seven days from onset or the duration of fever if longer, and contacts are freed from unnecessary restrictions.

Interestingly, regulations for isolation of infectious cases of tuberculosis, Minnesota's most serious communicable disease, are being strengthened and clarified. The control of chronic diseases such as tuberculosis, where infected persons may remain dangerous to their associates for long periods of time, even years, may be more directly influenced by isolation and quarantine regulations than in acute self-limited diseases. On the other hand, it is difficult to attribute much of the control of typhoid fever that has come about in Minnesota to the regulation by statute of those few hundred typhoid carriers listed in Health Department records, who presumably excrete typhoid germs for years with little change in their mode of living.

It must be accepted, in conclusion, that changing knowledge will bring changing practices. In hardly any other field of human health have there

Special Announcement

MSMA ANNUAL DUES

Following the recommendation of the Finance Committee, the House of Delegates of the Minnesota State Medical Association voted May 8, 1949, to continue the $10 assessment for 1950, and thereafter make it permanent by amending the Constitution to raise the dues to $30 per capita.

Members of the Minnesota State Medical Association are hereby notified that dues for this year will be a total of $30, and pending House of Delegates action at the annual meeting, June 12, 13 and 14, dues for the Minnesota State Medical Association will be permanently $30.

been such great changes in recent generations as in that of communicable diseases; quarantine regulations must expect adaptations in light of changing circumstances.

D. S. Fleming, M.D., Chief
Section of Preventable Diseases
Minnesota Department of Health

DEFICIT GOVERNMENT SPENDING

OUR FEDERAL debt is now 252.7 billion dollars or $1700 per person. Whereas, in 1947 the treasury showed a surplus of three-quarters of a billion and in 1948 a surplus of $8,419,469,844; in 1949 the deficit was $1,811,-440,048, and for the fiscal year 1950 there is an estimated deficit of $5,500,000,000.

It was Lenin's advice to let the capitalistic countries spend themselves into bankruptcy. Are we following his advice?

The responsibility for the deficit lies, for the most part, with Congress. However, we have a president who, instead of acting as a brake to spending, is continuously advocating more spending and higher taxes. Lobbies for special favors for numerous groups of citizens share in responsibility for the present extravagance of government. States that match federal subsidies with the idea that they are getting something for nothing also are to blame.

If some evidence of statesmanship in federal and state governments doesn't make its appearance in the near future, the usual result of deficit spending, bankruptcy, will inevitably follow with untold universal suffering.

Public opinion is a powerful factor in correcting poor government. The public's attention is being called through various publicity channels to the senseless extravagance of the federal and state governments. We, the people, can put an end to deficit government spending by informing legislators of our wishes.

COLDS AND ALLERGY

THE COMMON cold is responsible for more loss of time among employes than any other single disease. Medical science has been unable either to prevent or cure the common cold, and the thread-worn saying that a cold untreated will last two weeks and treated will last a fortnight is only too true.

The fact is, we don't understand any too well what a cold actually is. It is generally accepted that it is a virus infection of the respiratory tract which is followed by secondary bacterial invaders. There is reason to believe that the cold virus is present constantly in the upper respiratory passages in at least some persons, and we know that a variety of bacteria are present at all times in all nasal cavities. If the cold virus is ever present, we must assume a natural or acquired immunity in the absence of symptoms of a cold. The existence of the lack of immunity to the cold virus explains the rapid spread of colds to 100 per cent of an isolated community upon the exposure to one with a cold. The well-known frequent return of colds in certain individuals argues a short-lived immunity or the existence of more than one cold virus.

The rôle of exposure to drafts and chilling in the development of a cold is not clear. It is known that chilling the body causes a reflex vasoconstriction and lowering of temperature in the nasal mucous membrane. Does this cause a lowering of local resistance which allows a cold virus that is present to multiply? On the other hand, some individuals daily exposed to cold and chilling seldom contract colds. What is more, experimental inoculation of human beings and animals with cold virus can be accomplished without the element of chilling.

Recent literature has called attention to the probability of a relationship between allergy and the common cold.* The manifestations of a coryza are identical to the allergic response in hay fever. A cold may be considered an allergic response in an individual susceptible to the cold virus. It has been shown that allergic individuals—those who suffer from hay fever, asthma or food allergy—contract colds more often than normal persons. These constitute the cold-susceptible group who are repeatedly contracting colds. The authors state, "The response of the physically allergic person to these environmental factors (i.e., chilling of body, wetting of feet) may very well result in an outpouring of histamine into various shock centers throughout the body, particularly the respiratory tract, in sufficient quantity to destroy the local defense mechanism preparing the tissues for acceptance of the virus of the common cold." This assumes that the cold virus is already present. The authors state that secondary bacterial invaders are just as likely to be activated. On the other hand, they call attention to the fact that colds during attacks of hay fever are not common, so there must be other factors besides the condition of the mucous membrane. Immunity, though often transitory, does result—otherwise recovery from a cold would not take place. With exposure to enough antigen, all persons can be made to react in an allergic manner. It is easier, however, to consider the cold-susceptible person as one who is allergic to the cold virus. Again, according to the authors, 80 per cent of cold susceptible persons have other allergies or come from families with allergies, and 100 per cent of such persons have hyperplastic disease of the upper respiratory tract.

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*Fox, Noah, and Livingston, George: Role of allergy in the epidemiology of the common cold. Arch. Otolaryng., 496:575-586, (June) 1949.

It is reasoned that if, at the first appearance of the allergic response indicative of the onset of a cold, an anti-histaminic is taken and the nasal mucous membrane returned to normal or near normal, the cold might be cut short by preventing the development of the secondary bacterial invaders. Reports of trial use of various anti-histaminics in sizable groups of individuals indicate that colds can be thus cured in twenty-four to forty-eight hours in about 50 per cent of cases and alleviated in an additional 25 per cent. In about 25 per cent, the method is useless. Interestingly, some anti-histaminics are effective for some individuals and not for others. Some, of course, produce undesirable side reactions, such as sleepiness, and some do not.

The Food and Drug Administration has released a number of anti-histaminics for over-the-counter sale at drug stores, providing the printed instructions as to dosage meet with its approval. The newspapers are running full page advertisements of these preparations. It will be difficult for the biological houses that are attempting to limit the sale of their anti-histaminics to prescription trade to resist the temptation to share in the millions of dollars which will be spent in over-the-counter sales.

The anti-histaminics containing neo-hetramine are said to produce fewer side effects and are less likely to have harmful effects. Probably small children should not be given any anti-histaminics.

Reports indicate, however, that something has been found at last which will reduce the duration of the common cold. If it is only 50 per cent effective, it will be worth while.

CO-OPERATION IN THE TREATMENT OF TUBERCULOSIS

The skills required in the modern treatment of pulmonary tuberculosis are many and varied. The frequent association of tuberculous and nontuberculous complications adds further to the need for practically all medical and surgical specialty services, not excluding research facilities. The closest possible association and interchange of information and ideas between the tuberculosis and general hospitals is for these reasons evidently desirable. Particularly is it desirable for the teaching hospitals, which are the principal centers of clinical research, to maintain active contact with tuberculosis institutions, even to provide a quota of beds for the interchange of patients. CARL MUSCHENHEIM, M.D., *Am. Rev. Tuberc.*, July, 1949.

THE RATIONALE OF BLOOD TRANSFUSIONS IN THE TREATMENT OF THE TRUE TOXEMIAS OF PREGNANCY

(Continued from Page 41)

such a condition. Among putatively full-blooded Ute Indians, 98 per cent of them belong to Group O. At one time these Indians were a pure Group O people. As a result of crossing with the white man, there is now, however, a small amount of Group A among them. Among the Blackfeet Indians, we have a high percentage of Group A—there are about 80 per cent who belong to Group A. It is reasonable to assume that these Indians were at one time a pure Group A people, and when you find Group O among them, it is a result of crossing either with other Indians, the white man, or the Negro. O is the only other type found among them. All Indians and all Eskimos who have been examined are Rh positive. I have inquired among the Agency physicians in the Indian tribes I visited in the United States, Canada, and Alaska about the incidence of erythroblastosis fetalis and toxemia of pregnancy, and it is the general impression that the incidence is extremely low. Dr. Schrader said he did not recall finding any toxemia of pregnancy among full-blooded Blackfeet Indians. The records were checked, and it was found that among the Blackfeet Indians there is little recorded toxemia of pregnancy as follows:

Eclampsia	0.3 cases per 1000 pregnancies
Nephritis	3.0 cases per 1000 pregnancies
Hyperemesis Gravidarum	1 case per 1000 pregnancies

What is the explanation? Certainly these findings do not go against, but rather agree, with the theory presented by Dr. La Vake.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

WHITAKER & BAXTER REPORT PROGRESS

Visualizing compulsory health insurance as a "key political issue" in the next Congress and in the congressional elections, Whitaker & Baxter, the AMA's National Education Campaign directors, reported on progress to date at the Interim Session in Washington, December 6.

The two-point program of the campaign, as defined last February, was: (1) To defeat the compulsory health insurance legislation pending in congress; and (2) to put a permanent stop to the agitation for socialization of the medical profession by alerting the people to the costly consequences of such a program, and by providing the finest type of voluntary health insurance for all in need of prepaid medical protection.

Plan "Simple"

Whitaker & Baxter explained the plan of their campaign as "simple and involving only one basic requirement—to get the truth about the advantages and splendid accomplishments of American medicine, and about the disadvantages and dangers of government-medicine, to the people, together with factual proof in both cases."

The techniques used have been: a nationwide pamphlet distribution campaign, a vigorous publicity campaign, a speaking campaign and an endorsement drive. Fifty-five million pieces of campaign literature were prepared and distributed and more than 65,000 posters of "The Doctor" were mounted in hospitals, clinics, bus and railway stations, business buildings and anywhere else that would afford the public a view of the famed Fildes' painting with its challenging inscription, "Keep Politics Out of this Picture."

The endorsement campaign has been rewarded with the active, public support of 1,829 national, state and local organizations.

End result of the campaign thus far, according to Whitaker & Baxter, is: "The proponents of government medicine made a strategic retreat, and pigeonholed their legislation for the current session of Congress."

Lest too early optimism result from this report, Mr. Whitaker and Miss Baxter cautioned:

> "Although broad public disapproval of the government-medicine program is widely acknowledged—and although the Presidential plan to give its creator, the federal security administrator, cabinet status, was soundly defeated in a test of the same grass roots convictions—the administration is yet unconvinced."

LEGION COMMANDER SCORES TAX MEDICINE

> "The American Legion is opposed to national health insurance because it would stunt the growth and genius of the medical profession," the Legion's national commander said, December 8, at the Interim Session, "and because it would add another link to an already long bureaucratic chain."

George N. Craig issued this statement prior to an off-the-record address before the Conference of County Medical Society Officers.

> "Whether you call it state medicine or socialized medicine, it is still political medicine," he added. "Under such a system, the government is the boss, and the individual is no longer free to apply his initiative and imagination to the advantage of the profession and patients alike. Inevitably, the scientist is supplanted by the politician who in turn must dispense his services on a plane of partisan patronage."

WHY NOT INCLUDE PETS IN SCHEME?

The *Wall Street Journal* can see no reason for excluding quadrupeds from the government's manifold schemes for medical care, pensions and various other forms of security.

Recognizing that many families are unable to provide systems of annuities and the like for their pets, the *Journal* takes, for instance, the cat:

> "The most deserving of cats might thus be left, purely by accident, in destitution while the less deserving loll in luxury."

Happily, there is a solution, the editorial goes on to point out:

> "The only way to correct this inequity is for the cat pensions to be provided by the federal government on a uniform and non-contributory basis. And to remove further inequities, the same should be done for family canines, who are often more loyal and loved, and for the bovines and equines, who are certainly more useful than cats.
>
> "Why should one dog have the best of food and medical care whilst one more unfortunate huddles in alleyways?" asks the *Journal*, with as penetrating a social analysis as may be found anywhere in Fair Deal campaign literature. "Under nationalized veterinarianism there would be no dependence upon biological pedigrees."

No Restraint on Budget

Pooh-poohing the notion that the cost would be prohibitive, the *Journal* reminds its readers that both the Secretary of the Treasury and the Director of the Budget have made it clear that in dealing with welfare matters there must be no restraint because of budget limitations.

The editorial concludes with this stirring paragraph:

> "Doubtless the Senate Finance Committee, which plans a study of the whole pension system, will consider both the justice and the vote-getting potentialities of some such plan. Considering what we receive from the cow while she is young and productive, who suggests society is not her debtor when she is superannuated?"

BRITISH FINANCE CHIEF OPTIMISTIC

Sir Stafford Cripps, British chancellor of the exchequer, is optimistic about the financial fate of England under what he prefers to call "a mixed economy."

The "busiest man in England" was interviewed recently by an editor of *U. S. News and World Report* and described himself as "not quite so socialistic perhaps as some of my American friends."

During the course of the interview, he said:

> "But of course nationalization is not in the least likely to happen in the many private-enterprise industries that exist, *other than those which are basic to the economy."*

Asked his opinion on the trend of America toward more and more social security benefits and the soundness of this trend, in view of the fact that "in a democracy . . . people can vote themselves bigger and bigger benefits," Mr. Cripps hedged thusly:

Give Up Democracy?

> "That depends upon the responsibility of the democracy. Of course if a democracy takes so irresponsible a view of its obligations that it only regards the exchequer as a deep till into which it can perpetually dip its hand, I should personally suggest giving up democracy!"

Continuing, he said:

> "But that is not how we look at it in this country (England). We feel that it is quite possible, by giving people the information and the knowledge of economic facts, to instill into them a realization that they themselves are in fact paying for their own social benefits by taxation and by other means, and that therefore they must exercise restraint in the way in which they utilize those benefits and also in the amount of them they demand."

He neglects to add why the people of England have not been generally informed that the dollar a week they pay, which supposedly finances medical and related services, is actually channeled to "cash benefits," such as unemployment insurance and funeral expenses. Seventy-eight per cent of the cost of the health scheme comes out of general taxes and, from this fact, it may be deduced that the British public has no accurate knowledge of where tax money goes, and is actually being misled concerning the cost of the medical care program.

HOSPITAL OCCUPANCY RATE LEVELING

From a study of more than one hundred nongovernmental hospitals of varying size throughout the country, it has been ascertained that occupancy is continuing to level off from the peak of 1946.

"And there seems little evidence to indicate that this trend will change significantly in either direction," states Richard D. Vanderwarker, director of the Passavant Memorial Hospital, Chicago, Illinois.

Costs Rising

Considering the hospital's patient load as a relatively stable factor, Mr. Vanderwarker goes on to examine the rising costs of operating hospitals. Among the causes he cites are: wages, which, he feels will continue to rise because (a) there will be continuing pressure for hospitals to meet prevailing wages paid in industry and commerce, and (b) the market value of professional personnel services is increasing; the cost

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MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

230 Lowry Medical Arts Bldg., Saint Paul, Minnesota

Julian F. DuBois, M.D., Secretary

PHYSICIANS LICENSED FEBRUARY 11, 1949

January 1949 Examination

Name	*School*		*Address*
AUSTIN, William Edward	U. of Manitoba	MD 1946	2707 Nicollet Ave., Minneapolis, Minn.
CONDE, Richard Louis	U. of Minnesota	MB 1948	500 S.E. Delaware, Minneapolis, Minn.
ENGSTROM, Robert Birger	U. of Illinois	MD 1940	1009 Nicollet Ave., Minneapolis, Minn.
FOUST, Jr., Glenn Taylor	U. of Virginia	MD 1942	Mayo Clinic, Rochester, Minn.
FURMAN, Morris John	U. of Manitoba	MD 1944	University of Minnesota Medical School, Minneapolis, Minn.
GRIEBIE, Grant Leonard	Northwestern U.	MB 1943 MD 1944	Norwood, Minn.
JOHNSON, Carl Eric	Northwestern U.	MB 1945 MD 1946	Mayo Clinic, Rochester, Minn.
JOHNSON, Richard S.	U. of Minnesota	MB 1946 MD 1947	Minneapolis General Hospital, Minneapolis 15, Minn.
JOHNSTON, Richard McCreary	U. of Indiana	MD 1944	Mayo Clinic, Rochester, Minn.
JORDAN, Robert Atkin	U. of Kansas	MD 1944	Mayo Clinic, Rochester, Minn.
JOSSELSON, Albert Joseph	Northwestern U.	MB 1944 MD 1945	Mayo Clinic, Rochester, Minn.
McNEILL, James Ian	Queen's U.	MD 1944	Mayo Clinic, Rochester, Minn.
RIPLEY, Herbert Robert	U. of California	MD 1945	Mayo Clinic, Rochester, Minn.
ROBINSON, Arthur Weaver	U. of Kansas	MD 1944	Mayo Clinic, Rochester, Minn.
SANFORD, John Bryant	U. of Minnesota	MB 1948	Deaconess Hospital, Minneapolis, Minn.
SARGENT, James Wellington	U. of Michigan	MD 1943	Mayo Clinic, Rochester, Minn.
TESAR, Charles Eugene	U. of Minnesota	MB 1947 MD 1948	Wayne Co. General Hosp., Eloise, Mich.
THELEN, Emil Patrick	Loyola U.	MD 1943	Mayo Clinic, Rochester, Minn.
TVERBERG, Miltzo Stephen	Western Reserve	MD 1947	Midway Hospital, St. Paul 4, Minn.
WEYAND, Robert Devere	U. of California	MD 1945	Mayo Clinic, Rochester, Minn.
WIGGINS, James Kenneth	U. of Texas	MD 1942	4937 Columbus Ave., Minneapolis, Minn.
WILSON, Theodore Warren	U. of Minnesota	MB 1947 MD 1948	U.S. Naval Training & Dist. Center, Main Dispensary, Port Hueneme, California

Reciprocity Candidates

Name	*School*		*Address*
BELLOMO, John	St. Louis U.	MD 1948	Grand Meadow, Minn.
BOYD, Jr., David Armitage	Jefferson Med. Col.	MD 1930	Mayo Clinic, Rochester, Minn.
BRZUSTOWICZ, Richard John	Long Is. Col.	MD 1942	Mayo Clinic, Rochester, Minn.
BURGERT, Jr., Eran Omer	U. of Oklahoma	MD 1947	Mayo Clinic, Rochester, Minn.
CARPENTIERI, Joseph	U. of Louisville	MD 1943	University of Minnesota Medical School, Minneapolis, Minn.
CLARK, Elizabeth Alice	U. of Michigan	MD 1940	2301 Jefferson St., Duluth, Minn.
PARKER, Charles Walter	U. of Colorado	MD 1940	315 3rd St. S.W., Wadena, Minn.
STAPLEY, Jr., Lorel Aaron	Northwestern U.	MB 1945 MD 1946	Mayo Clinic, Rochester, Minn.
TWIGGS, Leo Funk	U. of Michigan	MD 1941	605 N. Main St., Austin, Minn.

National Board Candidates

Name	*School*		*Address*
ARATA, Justin Eugene	Indiana U.	MD 1944	Mayo Clinic, Rochester, Minn.
BALLANTYNE, Alando Jones	Columbia U.	MD 1942	Mayo Clinic, Rochester, Minn.
BOYD, Thomas Milton	U. of Colorado	MD 1943	Mayo Clinic, Rochester, Minn.
CARLIN, Maurice Patrick	Marquette U.	MD 1946	Veterans Adm. Hosp., Minneapolis, Minn.
CARLISLE, John Chesney	Harvard U.	MD 1945	Mayo Clinic, Rochester, Minn.
DAHL, James Curtis	U. of Minnesota	MB 1946 MD 1946	Veterans Adm. Hosp., Minneapolis, Minn.
FEENEY, Michael James	Duke U.	MD 1943	University of Minnesota Hospital, Minneapolis 14, Minn.
GRIFFIN, Jr., George D. J.	Loyola U.	MD 1947	Mayo Clinic, Rochester, Minn.
IZQUIERDO, Eleanor Roverud	Women's Med. Col. of Pa.	MD 1947	855 1st St. S.W., Rochester, Minn.
KELLY, Anthony Hill	Northwestern U.	MB 1946 MD 1947	Mayo Clinic, Rochester, Minn.
MILLER, Roland Drew	Northwestern U.	MB 1945 MD 1946	Mayo Clinic, Rochester, Minn.
OSTERHOLM, Richard Stanley	U. of Nebraska	MD 1943	Mayo Clinic, Rochester, Minn.
SAIDY, John Theodore	U. of Minnesota	MB 1946 MD 1946	Mayo Clinic, Rochester, Minn.

Name	*School*		*Address*
TAYLOR, Jr., Robert Wendel	Harvard U.	MD 1944	Mayo Clinic, Rochester, Minn.
UPSON, Jr., Mark	Columbia U.	MD 1945	Mayo Clinic, Rochester, Minn.
WATSON, John Benezet	U. of Iowa	MD 1945	Mayo Clinic, Rochester, Minn.
ZELLER, William Webb	Geo. Wash. U.	MD 1944	Mayo Clinic, Rochester, Minn.
ZIMMERMANN, Bernard	Harvard U.	MD 1945	1530 Edgcumbe Road, St. Paul 5, Minn.

PHYSICIANS LICENSED MAY 20, 1949

April 1949 Examination

Name	*School*		*Address*
ACHOR, Richard William Paul	U. of Oregon	MD 1945	Rochester State Hospital, Rochester, Minn.
ALCOTT, Donald L.	Rush-Chicago U.	MD 1942	Mayo Clinic, Rochester, Minn.
ANDERSON, Alton Duane	U. of Wisconsin	MD 1943	Mayo Clinic, Rochester, Minn.
ARONOW, Regine Ann	U. of Minnesota	MB 1948 MD 1949	Children's Hospital, 5224 St. Antoine St., Detroit 2, Michigan
ASTA, Joseph James	U. of Minnesota	MB 1948	St. Mary's Hospital, Duluth, Minn.
BASKIN, John Lane	U. of Texas	MD 1944	Mayo Clinic, Rochester, Minn.
BEARD, Earl Francis	Northwestern U.	MB 1946 MD 1948	Mayo Clinic, Rochester, Minn.
BERENS, James J.	Cincinnati U.	MD 1945	Mayo Clinic, Rochester, Minn.
BRADLEY, Robert Austin	Baylor U.	MD 1947	Student Health Service, Ag. Campus, Univ. of Minnesota, St. Paul, Minn.
BRESETTE, James Edward	Northwestern U.	MB 1945 MD 1946	Mayo Clinic, Rochester, Minn.
BUTIN, James Walker	U. of Kansas	MD 1947	Mayo Clinic, Rochester, Minn.
CLARK III, Percival Le Mon	U. of Tennessee	MD 1945	Mayo Clinic, Rochester, Minn.
COLBY, Jr., Malcolm Young	U. of Texas	MD 1943	Mayo Clinic, Rochester, Minn.
COOLEY, Jack Crain	Northwestern U.	MB 1947 MD 1948	Mayo Clinic, Rochester, Minn.
DUNLAP, Robert Weyer	Western Reserve	MD 1945	Mayo Clinic, Rochester, Minn.
FANGMAN, Richard Joseph	Creighton U.	MD 1944	Mayo Clinic, Rochester, Minn.
GILBERT, Louis William	U. of Nebraska	MD 1943	Mayo Clinic, Rochester, Minn.
GOOSSEN, George P.	Southwestern Medical College	MD 1948	Mountain Lake, Minn.
HATTOX, Jr., John Stanley	U. of Tennessee	MD 1945	Mayo Clinic, Rochester, Minn.
HEMPSTEAD, Richard Hartley	U. of Michigan	MD 1944	Mayo Clinic, Rochester, Minn.
HILGERMANN, George O.	Marquette U.	MD 1948	4622 Casco Ave., Minneapolis, Minn.
HOLIAN, Darwin Kennard	U. of Minnesota	MB 1947 MD 1948	3209 Edgewood Ave., Minneapolis 16, Minn.
HUIZENGA, Kenneth Albert	Western Reserve	MD 1944	Mayo Clinic, Rochester, Minn.
JOHNSON, Adelaide McFadyen	U. of Chicago	MD 1932	Mayo Clinic, Rochester, Minn.
JOHNSON, Jr., Charles Michael	U. of Chicago	MD 1945	Mayo Clinic, Rochester, Minn.
KELSEY, James Edward	U. of Minnesota	MB 1948	10 Evergreen Place, Loch Arbour, N. J.
KJENAAS, Ervin Arthur	U. of Minnesota	MB 1948	Letterman General Hospital, San Francisco, California
KLINE, Richard Frank	U. of Minnesota	MB 1947 MD 1948	Montgomery, Minn.
LEHMANN, Arnold Louis John	U. of Manitoba	MD 1944	Veterans Adm. Hosp., Minneapolis, Minn.
LORTON, William Lewis	U. of Chicago	MD 1947	Box 1254, Keewatin, Minn.
MARKLE IV, George Bushar	U. of Pa.	MD 1946	Mayo Clinic, Rochester, Minn.
MATTSON, Roger Peter	U. of Illinois	MD 1948	5831 Knox Ave. So., Minneapolis, Minn.
McDONALD, Owen Gerard	Rush Medical College of U. of Chicago	MD 1939	205 W. 2nd St., Duluth, Minn.
McVAY, Jr., James Robert	Johns Hopkins U.	MD 1944	Mayo Clinic, Rochester, Minn.
MILROY, Thomas Wands	U. of Manitoba	MD 1945	Ancker Hospital, St. Paul, Minn.
OLFELT, Paul Charles	U. of Minnesota	MB 1947	2428 34th Ave. So., Minneapolis, Minn.
RAGSDALE, Jr., William Egbert	U. of Tennessee	MD 1939	Mayo Clinic, Rochester, Minn.
REINHARDT, James Henry	Temple U.	MD 1947	Box 214, Red Lake Falls, Minn.
SAXON, Jr., Foy Fulward	U. of Tennessee	MD 1945	Mayo Clinic, Rochester, Minn.
SMITH, John Lawrence	U. of Rochester	MD 1948	Walker Air Force Base, 509 Med. Group, Roswell, New Mexico
SMITH, Reginald Armitage	U. of Alberta	MD 1942	Mayo Clinic, Rochester, Minn.
SPONSEL, Kenath Herrick	U. of Chicago	MD 1943	Mayo Clinic, Rochester, Minn.
STOY, Robert Andrew	Loyola U.	MD 1948	105 1st St. S.E., Little Falls, Minn.
UTNE, John Richard	U. of Illinois	MD 1948	4144 N. Fremont, Minneapolis, Minn.
VAUGHN, Charles Gordon	U. of Minnesota	MB 1947 MD 1948	Plainview, Minn.
WALL, James Otis	U. of Minnesota	MB 1948	1981 Princeton Ave., St. Paul 5, Minn.
WILSON, Joseph Didjon	Stanford U.	MD 1944	Mayo Clinic, Rochester, Minn.
WRIGHT, William Spurgeon	U. of Minnesota	MB 1945 MD 1946	University of Minnesota Hospitals, Minneapolis 14, Minn.

Reciprocity Candidates

Name	*School*		*Address*
AHRENS, Herbert George	U. of Nebraska	MD 1945	Mayo Clinic, Rochester, Minn.
DIDCOCT, John William	Vanderbilt U.	MD 1937	Mayo Clinic, Rochester, Minn.

Name	*School*		*Address*
DURHAM, Jr., Harry Blaine	Northwestern U.	MB 1944 MD 1945	Mayo Clinic, Rochester, Minn.
KLEMME, Arthur Edward	U. of Michigan	MD 1945	Maternity Hospital, 2215 Glenwood Ave., Minneapolis, Minn.
LAMP, Jr., Clyde Benjamin	U. of Pittsburgh	MD 1945	Mayo Clinic, Rochester, Minn.
MARTIN, William Joseph	Georgetown U.	MD 1943	Mayo Clinic, Rochester, Minn.
NICKERSON, Neil Dwight	Western Reserve	MD 1943	Bratrud Clinic, Thief River Falls, Minn.
PHILP, David Robart	U. of Louisville	MD 1948	515 S. 2nd St., Mankato, Minn.
ROSENTHAL, Macey Herschel	U. of Virginia	MD 1944	Mayo Clinic, Rochester, Minn.
ZIMMER, Frederick Ellis	U. of Pennsylvania	MD 1945	Mayo Clinic, Rochester, Minn.

National Board Candidates

Name	*School*		*Address*
AHRENS, Robert Myron	New York Medical College	MD 1947	904 Rice St., St. Paul, Minn.
BARTHOLOMEW, Lloyd Gibson	U. of Vermont	MD 1944	Mayo Clinic, Rochester, Minn.
DAWE, Clyde Johnson	Johns Hopkins U.	MD 1945	Mayo Clinic, Rochester, Minn.
HAINES, Gerald Leon	U. of Vermont	MD 1944	University of Minnesota Hospitals, Minneapolis 14, Minn.
MANKIN, Haven Winslow	Geo. Wash. U.	MD 1947	Mayo Clinic, Rochester, Minn.
McNEIL, John Joseph	Tufts U.	MD 1942	University of Minnesota Hospitals, Minneapolis 14, Minn.
MILLER, John Martin	U. of Indiana	MD 1945	Mayo Clinic, Rochester, Minn.
PEMBERTON, Albert Hogeland	Northwestern	MB 1947 MD 1948	Mayo Clinic, Rochester, Minn.
RICE, Fred Armstrong	Harvard U.	MD 1943	1009 Nicollet Ave. So., Minneapolis, Minn.
SOLTERO, Donald Emanuel	Marquette U.	MD 1944	Mayo Clinic, Rochester, Minn.
STORKAN, Margaret Ann	Creighton U.	MD 1944	University of Minnesota Medical School, Minneapolis, Minn.
SWIFT, Edward Albert	Syracuse U.	MD 1943	Mayo Clinic, Rochester, Minn.
TODD III, John Wesley	Medical College of Virginia	MD 1947	Mayo Clinic, Rochester, Minn.

PHYSICIANS LICENSED JULY 15, 1949

June 1949 Special Examination

Name	*School*		*Address*
ADAMS, Jr., Paul	U. of Minnesota	MB 1949	University of Minnesota Hospitals, Minneapolis 14, Minn.
AMBERG, John	U. of Minnesota	MB 1949	950 E. 59th St., Chicago, Ill.
BENNETT, Frank Mocroft	U. of Minnesota	MB 1949	3400 S.W. Veterans Rd., Portland, Ore.
BOYSEN, Edwin Elberg	U. of Minnesota	MB 1949	Ancker Hospital, St. Paul, Minn.
BROWN, James L.	U. of Minnesota	MB 1949	Alameda Co. Hospital, Oakland, Calif.
CAMPION, Richard Sylvester	U. of Minnesota	MB 1949	St. Luke's Hospital, Denver, Colorado
CORRIGAN, Cyril J.	U. of Minnesota	MB 1949	Miller Hospital, St. Paul, Minn.
DESPOPOULOS, Agamemnon	U. of Minnesota	MB 1947 MD 1948	Philadelphia General Hospital, Philadelphia, Pennsylvania
DOYLE, James Raymond	U. of Minnesota	MB 1949	Madigan General Hospital, Tacoma, Wash.
EASTWOLD, Conrad Engwold	U. of Minnesota	MB 1949	Mpls. Gen. Hospital, Minneapolis 15, Minn.
EKLUND, Jr., Edwin Gustaf	U. of Minnesota	MB 1949	Percy Jones General Hospital, Battle Creek, Michigan
ERICKSON, Lief W.	U. of Minnesota	MB 1949	Milwaukee Gen. Hosp., Milwaukee, Wis.
FLEMING, Richard E.	U. of Minnesota	MB 1949	Milwaukee Gen. Hosp., Milwaukee, Wis.
FLOERSCH, Adrian Joseph	Creighton U.	MD 1948	4119 E. Lake St., Minneapolis, Minn.
GINSBERG, James P.	U. of Minnesota	MB 1949	Research & Educational Hosp., Chicago, Ill.
GROENIG, David Cress	U. of Minnesota	MB 1949	St. Luke's Hospital, Denver, Colo.
HACKER, Elaine Mary	U. of Minnesota	MB 1949	Detroit Receiving Hospital, Detroit, Mich.
HANSON, William Byrne	U. of Minnesota	MB 1949	Mpls. Gen. Hospital, Minneapolis, Minn.
HEDIN, Roger Willard	U. of Minnesota	MB 1949	Madigan General Hospital, Tacoma, Wash.
HENSLER, Nestor M.	U. of Minnesota	MB 1949	Madigan General Hospital, Tacoma, Wash.
JARVIS, Marilyn Anderson	U. of Minnesota	MB 1949	Miller Hospital, St. Paul, Minn.
JAY, Alan Robert	U. of Kansas	MD 1942	Swedish Hospital, Minneapolis, Minn.
KEITH, Paul Jackson	U. of Minnesota	MB 1949	Denver General Hospital, Denver, Colo.
LARSON, Gerald Elsworth	U. of Minnesota	MB 1949	St. Mary's Hospital, Duluth, Minn.
LINCOLN, Thomas Abraham	U. of Minnesota	MB 1949	Ancker Hospital, St. Paul, Minn.
LUNDBLAD, Robert Myron	U. of Minnesota	MB 1949	St. Luke's Hospital, Duluth, Minn.
MAGNUSON, Raymond Carl	U. of Minnesota	MB 1949	St. Luke's Hospital, Duluth, Minn.
MARRONE, Patrick Henry	U. of Minnesota	MB 1949	St. Mary's Hospital, Duluth, Minn.
McCABE, Margaret Mary	U. of Minnesota	MB 1948 MD 1949	420 Genesee Bank Bldg., Flint, Mich.
McKENNA, Elizabeth Mary	U. of Minnesota	MB 1949	Milwaukee County General Hospital, Milwaukee, Wisconsin
McKENNA, William Thomas	U. of Minnesota	MB 1946 MD 1946	4339 Cedar Ave., Minneapolis, Minn.
MEINERT, John Keith	U. of Minnesota	MB 1949	University of Michigan Hospital, Ann Arbor, Michigan

Name	*School*		*Address*
NELSON, Jr., George Ernst	U. of Minnesota	MB 1949	St. Luke's Hospital, Chicago, Ill.
NESSE, James Allan	U. of Minnesota	MB 1949	Brooke Army General Hospital, San Antonio, Texas
O'CAIN, Raymond Kirby	Medical College of South Carolina	MD 1941	102-110 2nd Ave. S.W., Rochester, Minn.
OPSAHL, Lawrence Jurgen	U. of Minnesota	MB 1949	Mpls. Gen. Hospital, Minneapolis 15, Minn.
POND, Norman Eggleston	U. of Minnesota	MB 1949	Highland Alameda County Hospital, Oakland, Calif.
REIF, Robert William	U. of Minnesota	MB 1949	Cleveland City Hospital, Cleveland, Ohio
SANDE, John Peter	U. of Minnesota	MB 1949	Mpls. Gen. Hospital, Minneapolis 15, Minn.
SAXON, Eugene Ira	U. of Minnesota	MB 1949	San Francisco General Hospital, San Francisco, Calif.
SCUDAMORE, Harold Hunter	Northwestern U.	MB 1945 MD 1946	102-110 2nd Ave. S.W., Rochester, Minn.
SOLHAUG, John Sims	U. of Minnesota	MB 1949	St. Luke's Hospital, Denver, Colo.
STAHN, Louis H.	U. of Minnesota	MB 1949	Sacred Heart Hospital, Spokane, Wash.
STAVIG, Paul Hjertaas	U. of Minnesota	MB 1949	Madigan General Hospital, Ft. Lewis, Tacoma, Wash.
STERRIE, Norman Anderson	U. of Minnesota	MB 1949	Mpls. Gen. Hospital, Minneapolis 15, Minn.
STONE, Julius	U. of Minnesota	MB 1949	University of Oklahoma Hospital, Oklahoma City, Okla.
STUHLER II, Louis George	U. of Minnesota	MB 1949	Detroit Receiving Hospital, Detroit, Mich.
TROUP, Stanley Burton	U. of Minnesota	MB 1949	Strong Memorial Hosp., Rochester, N. Y.
TUCKER, Richard Carlyle	U. of Minnesota	MB 1949	Mpls. Gen. Hospital, Minneapolis 15, Minn.
WALSTON, James Herbert	Northwestern U.	MB 1947 MD 1948	Clarkfield, Minn.
WEISS, James Moses Aaron	U. of Minnesota	MB 1949	U. S. Marine Hospital, Seattle, Wash.
WENDT, H. Paul	U. of Minnesota	MB 1949	Milwaukee County General Hospital, Milwaukee, Wis.
WICKS, Edwin Owen	U. of Minnesota	MB 1949	Eastern Maine Gen. Hosp., Bangor, Maine
WILHELM, Warren Fred	U. of Chicago	MD 1945	102-110 2nd Ave. S.W., Rochester, Minn.
WOLTJEN, Myron James	U. of Minnesota	MB 1949	Asbury Hospital, Minneapolis, Minn.
WONG, Lillian	U. of Minnesota	MB 1949	San Joaquin General Hospital, French Camp, Calif.
ZELL, John Richard	U. of Minnesota	MB 1949	Naval Hospital, Philadelphia, Pa.

Reciprocity Candidates

Name	*School*		*Address*
ARTIST, Elmer Jacob	U. of Nebraska	MD 1943	102-110 2nd Ave. S.W., Rochester, Minn.
EVERETT, Jr., Ernest Frank	Washington U.	MD 1945	Veterans Adm. Hosp., Minneapolis, Minn.
JOHNSON, William Steele	Medical College of Virginia	MD 1943	953 Medical Arts Bldg., Minneapolis, Minn.
LINDEMAN, Raymond Jacob	U. of Tennessee	MD 1948	Paynesville, Minn.
VEIT, Henry	Marquette U.	MD 1943	2703 W. Wisconsin Ave., Milwaukee Wis.
WINCHELL, Clarence Paul	U. of Michigan	MD 1945	Veterans Adm. Hosp., Minneapolis, Minn.

PHYSICIANS LICENSED JULY 15, 1949

June 1949 Examination

Name	*School*		*Address*
BELCHER, Royden	U. of Minnesota	MB 1949	Ancker Hospital, St. Paul, Minn.
BLOCK, Jr., William Joseph	U. of Texas	MD 1945	Mayo Clinic, Rochester, Minn.
BOLIN, Richard Reuel	Marquette U.	MD 1948	4340 N. Drake Ave., Chicago, Ill.
DE TAR, Jr., Burleigh Eli	U. of Kansas	MD 1945	Mayo Clinic, Rochester, Minn.
FRIEDELL, Gilbert Hugo	U. of Minnesota	MB 1949	Mpls. Gen. Hospital, Minneapolis 15, Minn.
FRIEND, Charles Albert	Tufts Med. Col.	MD 1948	2703 E. Lake St., Minneapolis, Minn.
GARLOCK, Grant Leonard	Hahnemann Medical College	MD 1948	217½ Barker Bldg., 3rd St., Bemidji, Minn.
HANSON, Hugh Henderson	U. of Texas	MD 1943	Mayo Clinic, Rochester, Minn.
HARADA, Thomas Taketo	Temple U.	MD 1943	Veterans Hospital, Minneapolis, Minn.
HEALY, Michel Maurin	Georgetown U.	MD 1945	Mayo Clinic, Rochester, Minn.
LAM, Robert C.	W. China Union U.	MD 1945	St. Mary's Hospital, Grand Rapids, Mich.
LAY, Coy Lafayette	U. of Texas	MD 1946	Mayo Clinic, Rochester, Minn.
MARTIN, Albert Charles	U. of Illinois	MD 1944	119 S.W. Park, Luverne, Minn.
MELIUS, Marshall J.	U. of Minnesota	MB 1949	Milwaukee Co. Hospital, Milwaukee, Wis.
OWENS, Jr., Frederick Mitchum	U. of Chicago	MD 1939	Veterans Adm. Hosp., Minneapolis, Minn.
PAPANDREOU, Christine	Boston U.	MD 1947	Division of Psychiatry, University of Minnesota Hospitals, Minneapolis, Minn.
SCHEIDEL, Alois McKeon	U. of Minnesota	MB 1949	Mpls. Gen. Hospital, Minneapolis 15, Minn.
SEAGLE, Joseph Bowman	Indiana U.	MD 1947	Mayo Clinic, Rochester, Minn.
SOWADA, Ernest Joseph	U. of Minnesota	MB 1949	Ancker Hospital, St. Paul, Minn.
WAGENKNECHT, Jr., Theodore William	U. of Illinois	MD 1948	Appleton, Minn.
YAMAMOTO, Joe	U. of Minnesota	MB 1948 MD 1949	Veterans Adm. Hosp., Minneapolis, Minn.

Reciprocity Candidates

Name	*School*		*Address*
DOVENMUEHLE, Robert Henry	St. Louis U.	MD 1948	Hastings State Hospital, Hastings, Minn.
EDWARDS, Charles Cornell	Colorado U.	MD 1948	Department of Physiology, University of Minnesota, Minneapolis, Minn.
EVERS, Robert Neale	Washington U.	MD 1948	1044 Lowry Medical Arts Bldg., St. Paul
FASBENDER, Herman Thomas	St. Louis U.	MD 1948	St. Raphael Hospital, Hastings, Minn.
HODGE, James Carlton	U. of Oklahoma	MD 1948	Fairview Hospital, Minneapolis, Minn.
PARSHALL, Dale Bryan	U. of Michigan	MD 1944	Veterans Adm. Hosp., Minneapolis, Minn.
POHL, Donald Edward	U. of Iowa	MD 1944	Crookston, Minn.
SCHERBEL, Arthur Lawrence	U. of Wisconsin	MD 1944	Mayo Clinic, Rochester, Minn.
SIEMON, Glenn	Stanford U.	MD 1946	Mayo Clinic, Rochester, Minn.

National Board Candidates

Name	*School*		*Address*
ALDRICH, Robert Anderson	Northwestern U.	MB 1943 MD 1944	Mayo Clinic, Rochester, Minn.
FLIPSE, Martin Eugene	Harvard U.	MD 1943	Mayo Clinic, Rochester, Minn.
FREEMAN, Gerald I.	U. of Iowa	MD 1946	1118 Lowry Medical Arts Bldg., St. Paul 2
GOLDSTEIN, Norman Philip	Geo. Washington U.	MD 1946	Mayo Clinic, Rochester, Minn.
GULLICKSON, Jr., Glenn	U. of Minnesota	MB 1944 MD 1945	Div. of Physical Medicine, Univ. of Minn. Medical School, Minneapolis, Minn.
HOULE, Rollin John	St. Louis U.	MD 1948	Sauk Rapids and East St. Cloud, Minn.
LONGLEY, Jay Rhodes	Geo. Washington U.	MD 1946	Mayo Clinic, Rochester, Minn.
MASON, Edward Eaton	U. of Iowa	MD 1945	University of Minnesota Hospitals, Minneapolis 14, Minn.
SEIBEL, David Ira	Rochester U.	MD 1945	University of Minnesota Hospitals, Minneapolis 14, Minn.
SPEAR, Ivan MacDonald	McGill U.	MD 1945	Mayo Clinic, Rochester, Minn.
VAN DUYN II, John	Johns Hopkins U.	MD 1931	5601 Grand Ave., Duluth, Minn.

PHYSICIANS LICENSED NOVEMBER 18, 1949

October 1949 Examination

Name	*School*		*Address*
ADSON, Martin Alfred	U. of Minnesota	MB 1947 MD 1948	Mayo Clinic, Rochester, Minn.
BEHRENS, Clayton Leo	Temple U.	MD 1943	Ancker Hospital, St. Paul, Minn.
BERNARD, Donald P.	Marquette U.	MD 1948	Mpls. Gen. Hospital, Minneapolis 15, Minn.
CENTER, Sol	U. of Minnesota	MB 1949	Mpls. Gen. Hospital, Minneapolis 15, Minn.
DANIELSON, Charles David	U. of Minnesota	MB 1945 MD 1946	Veterans Adm. Hospital, Oklahoma City, Oklahoma
DAVIS, Windon Hewett	U. of Minnesota	MB 1948 MD 1949	Mayo Clinic, Rochester, Minn.
DOUST, William Charles	Syracuse U.	MD 1945	Mayo Clinic, Rochester, Minn.
ESSER, Robert Anthony	Northwestern U.	MB 1944 MD 1945	Mayo Clinic, Rochester, Minn.
FERRIN, Allan Lowell	U. of Oregon	MD 1944	Ancker Hospital, St. Paul, Minn.
GREENE, Jr., Wilson	Medical College of South Carolina	MD 1945	Mayo Clinic, Rochester, Minn.
HAESLY, Warren W.	Northwestern U.	MB 1948 MD 1949	Wykoff, Minn.
HARBAUGH, John T.	Indiana U.	MD 1946	St. John's Hospital, St. Paul, Minn.
HERSHENHOUSE, Samuel Benjamin	U. of Illinois	MD 1944	5525 S. Paulina St., Chicago, Ill.
HINES, Jr., Carl R.	Northwestern U.	MB 1946 MD 1947	Mayo Clinic, Rochester, Minn.
HUNTER, Murray Hazen	Marquette U.	MB 1949	Ancker Hospital, St. Paul, Minn.
HUNTER, Robert Carl	U. of Maryland	MD 1947	Mayo Clinic, Rochester, Minn.
IVY, John Henry	Northwestern U.	MB 1945 MD 1946	Mayo Clinic, Rochester, Minn.
KATZ, Yale Joel	U. of Minnesota	MB 1949	3649 Stevens Ave., Minneapolis, Minn.
KORENGOLD, Marvin Curtis	U. of Minnesota	MB 1949	Mpls. Gen. Hospital, Minneapolis 15, Minn.
MacCARTHY, Jr., John Donald	Johns Hopkins	MD 1946	Department of Pathology, University of Minnesota, Minneapolis 14, Minn.
MACFARLANE, Edmond Blakely	U. of Toronto	MD 1947	Mayo Clinic, Rochester, Minn.
Mac INNIS, Donald Francis	Marquette U.	MD 1936	5729 Longfellow Ave., Minneapolis, Minn.
MANAHAN, Gaylord Eugene	U. of Kansas	MD 1944	Ancker Hospital, St. Paul 1, Minn.
McCLELLAN, Samuel Goodman	Harvard U.	MD 1944	University of Minnesota Hospitals, Minneapolis, Minn.
McNEILL, John Alexander	U. of Manitoba	MD 1944	Miller Hospital, St. Paul, Minn.
MERKERT, Jr., George L.	U. of Louisville	MD 1948	Ancker Hospital, St. Paul 1, Minn.
NOBLE, John Henry	U. of Illinois	MD 1947	Browns Valley, Minn.
ORWOLL, Harold Sylfest	U. of Chicago	MD 1946	St. Peter, Minn.
OWEN, Howard Wayne	U. of Chicago	MD 1946	Mayo Clinic, Rochester, Minn.
REITER, Ralph Alan	U. of Maryland	MD 1946	Mayo Clinic, Rochester, Minn.
ROSIN, John David	U. of Maryland	MD 1942	Mayo Clinic, Rochester, Minn.

Name	*School*		*Address*
CHUT, John William	Northwestern U.	MB 1946 MD 1947	2301 4th St. N., Minneapolis, Minn.
MITH, William Thomas	U. of Kansas	MD 1946	1717 W. 31 St., Minneapolis, Minn.
OWNSEND, William Albert	U. of Minnesota	MB 1946 MD 1947	State Department of Health, University of Minnesota Campus, Minneapolis, Minn.
AISBREN, Burton Armin	U. of Wisconsin	MD 1946	5537 Oliver St., Minneapolis, Minn.
ENZ, Carl	Jefferson Medical College	MD 1949	Asbury Hospital, Minneapolis, Minn.

Reciprocity Candidates

Name	*School*		*Address*
GA, John Hesla	U. of Nebraska	MD 1948	217 Pleasant St., Mankato, Minn.
EHLING, Frederick Louis	U. of Minnesota	MB 1946 MD 1947	906 Ninth Ave. So., Moorhead, Minn.
ASEY, Robert Elsworth	U. of Oklahoma	MD 1945	Mayo Clinic, Rochester, Minn.
AWSON, Jr., James Robertson	Vanderbilt U.	MD 1931	110 Anatomy Bldg., Univ. of Minnesota, Minneapolis 14, Minn.
ILLARD, Jr., Powell Garland	U. of Virginia	MD 1947	Mayo Clinic, Rochester, Minn.
ONALD, Jr., Thomas Claude	Tulane U.	MD 1945	Mayo Clinic, Rochester, Minn.
DE, Mitchell	Tulane U.	MD 1945	Mayo Clinic, Rochester, Minn.
ELDICK, Harley Glen	U. of Iowa	MD 1945	Buffalo Center, Iowa
OODLAD, James Homer	U. of Wisconsin	MD 1940	Mayo Clinic, Rochester, Minn.
ARDWICKE, Henry Montfort	U. of Rochester	MD 1943	5601 Grand Ave., Duluth 7, Minn.
OFFMAN, Murray Stanley	U. of Colarodo	MD 1947	Mayo Clinic, Rochester, Minn.
OOD, Leo Thomas	U. of Nebraska	MD 1946	Mayo Clinic, Rochester, Minn.
ORDAN, Jr., George Lyman	U. of Pennsylvania	MD 1944	Mayo Clinic, Rochester, Minn.
ENT, Jr., George Benjamin	U. of Colorado	MD 1947	Mayo Clinic, Rochester, Minn.
ATHIESON, Don R.	U. of Minnesota	MB 1936 MD 1936	Mayo Clinic, Rochester, Minn.
ETCALF, Norman Barnard	U. of Nebraska	MD 1948	Onamia, Minn.
OBLE, James Hiatt	U. of California	MD 1946	Mayo Clinic, Rochester, Minn.
'SHAUGHNESSY, Edward Joseph	St. Louis U.	MD 1945	Mayo Clinic, Rochester, Minn.
SBORN, Donald Olin	U. of Nebraska	MD 1946	203 E. Broadway, Owatonna, Minn.
STLING, Burton Charles	U. of Michigan	MD 1948	215 W. 3rd St., Hastings, Minn.
OST, David Bellar	U. of Michigan	MD 1948	Mayo Clinic, Rochester, Minn.
ETTER, Richard Henry	U. of Wisconsin	MD 1943	Mayo Clinic, Rochester, Minn.
IESCHL, Elizabeth Katherine	Marquette U.	MD 1947	815 North Ave., Jordan, Minn.
CHOLZ, Donald August	Western Reserve	MD 1945	Mayo Clinic, Rochester, Minn.
TAHLER, Paul Anthony	Marquette U.	MD 1947	Jordan, Minn.
TERNS, Donald	Baylor U.	MD 1945	Veterans Adm. Hosp., Minneapolis, Minn.
RIPPLEHORN, Hugh Jason	U. of Pennsylvania	MD 1946	1009 Nicollet Ave., Minneapolis, Minn.
EBER, Walter Edward	Stanford U.	MD 1946	Mayo Clinic, Rochester, Minn.
INELAND, Richard Eugene	U. of Michigan	MD 1946	Mayo Clinic, Rochester, Minn.

National Board Candidates

Name	*School*		*Address*
RNESON, Charles Albert	Northwestern U.	MB 1933 MD 1934	714 Second St., Bismarck, No. Dak.
ECKER, Donald Leo	Colorado U.	MD 1946	Mayo Clinic, Rochester, Minn.
AREY, John Merwin	Harvard U.	MD 1945	Mayo Clinic, Rochester, Minn.
e la VEGA, Frederick James	Creighton U.	MD 1946	Veterans Adm. Hosp., Minneapolis, Minn.
BERLEIN, Walter Rather	Harvard U.	MD 1945	1712 Brook Ave. S.E., Minneapolis, Minn.
REYMANN, John Gordon	Harvard U.	MD 1946	Mayo Clinic, Rochester, Minn.
HORMLEY, Kenneth Owen	Harvard U.	MD 1946	Mayo Clinic, Rochester, Minn.
IFFORD, Jr., Ray Wallace	Ohio State U.	MD 1947	Mayo Clinic, Rochester, Minn.
EUB, Robert Phillip	Marquette U.	MD 1946	Mayo Clinic, Rochester, Minn.
OHNSON, Donald Arthur	Geo. Washington U.	MD 1945	Mayo Clinic, Rochester, Minn.
ENNEDY, Timothy Vincent Aloysius	St. Louis U.	MD 1948	Mayo Clinic, Rochester, Minn.
OLB, Lawrence Coleman	Johns Hopkins U.	MD 1934	Mayo Clinic, Rochester, Minn.
ONGO, Vincent Joseph	Yale U.	MD 1946	Mayo Clinic, Rochester, Minn.
YERS, Warren Powers Laird	Columbia U.	MD 1945	Mayo Clinic, Rochester, Minn.
ELSON, Russell Marion	U. of Utah	MD 1947	University of Minnesota Hospitals, Minneapolis, Minn.
WEN, William Eugene	Columbia U.	MD 1942	St. Ansgar, Iowa
UIGLEY, Walter Paul	Marquette U.	MD 1946	309 LaBree Ave. N., Thief River Falls
CANLON, Paul William	Syracuse U.	MD 1946	Mayo Clinic, Rochester, Minn.
CHWYZER, Marguerite	Yale U.	MD 1943	% David McCloud, W2681 1st Nat. Bank Bldg., St. Paul 1, Minn.
HOCKET, Everett	Long Island College	MD 1948	Mayo Clinic, Rochester, Minn.
HALE, Harold Brian	U. of Minnesota	MB 1939 MD 1940	2115 Fifth Ave., Los Angeles, Calif.
IERMAN, William Henry	U. of Colorado	MD 1945	Mayo Clinic, Rochester, Minn.
ILLESS, Hersel F.	College of Medical Evangelists	MD 1938	St. Barnabas Hospital, Minneapolis, Minn.

Minnesota Academy of Medicine

Meeting of October 12, 1949

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, October 12, 1949. Dinner was served at 7 o'clock, and the meeting was called to order at 8:20 p.m. by the President, Dr. J. A. Lepak.

There were fifty-five members and six guests present.

Dr. Lepak asked Dr. H. S. Diehl to introduce Dr. Leslie Banks, of Cambridge, England, who gave a short talk and answered questions on the present socialized medicine program in England.

Dr. Carl B. Drake read the following memorial to Dr. James Gilfillan.

JAMES S. GILFILLAN
1869-1949

Dr. James S. Gilfillan was born April 15, 1869, the son of Judge and Mrs. James Gilfillan of Saint Paul. He attended public schools but was such a poor student he was sent to Shattuck Military Academy at Faribault. By the end of the year he was at the foot of his class, and instead of returning to Shattuck he obtained employment with Auerbach, Finch and Van Slyke, a jobbing house in Saint Paul, and later with the Northern Pacific Railway. After several years so employed, he went to Sauk Center where he spent two years with an uncle, Dr. James Montgomery McMasters, reading medicine and making calls with Dr. McMasters. Here it was that he became interested in the study of medicine. He matriculated at the University of Minnesota Medical School, graduating in 1897. He then took another year at the University of Pennsylvania Medical School, obtaining an M.D., degree from that institution in 1898. After interning at King's County Hospital in Brooklyn, he returned to practice in Saint Paul.

In 1906, Dr. Gilfillan married Hilda Benson. Having made himself proficient in German, he, accompanied by Mrs. Gilfillan, went to Vienna in 1907, to take postgraduate study in internal medicine. He characteristically refused to present letters of introduction to professors in Vienna but before the year was out had been put in charge of forty beds. His histories written in German script were so reliable that he was known as the Rock of Gibraltar. Upon his return to Saint Paul, he limited himself to internal medicine, having done some surgical practice before his trip to Vienna.

Although Dr. Gilfillan was anything but a student in his youth, he became an insatiable reader and fine student after he began the study of medicine. He became very proficient in German, French and Swedish—having learned the last of these languages from Mrs. Gilfillan. He was blessed with a remarkably retentive memory. His ability in the field of diagnosis was a source of envy of the many young doctors with whom he came in contact. His absolute honesty was universally recognized by his friends and acquaintances. No description of his character would be complete without mention of his keen sense of humor.

Dr. Gilfillan was on the University of Minnesota Medical School faculty from 1903 until his retirement in 1936, having been Associate Clinical Professor of Medicine from 1915 until 1936.

He was elected to membership in the Minnesota Academy of Medicine in 1905 and read his thesis February 1, 1905, entitled "Intermittent Gastric Hypersecretion," which was published in the *Saint Paul Medical Journal* (7:244, 1905). He served as president in 1931 and chose the title of "Compulsory Sickness Insurance" for his address as retiring president on January 13, 1932. This address was published in MINNESOTA MEDICINE in 1932 (15:295, 1932).

Dr. Gilfillan was a member of the Miller Clinic during its existence from 1921 to 1933. He maintained offices with Dr. A. R. Hall and Dr. George E. Senkler from 1933 until his retirement from active practice in 1938. A fractured hip sustained April 16, 1949, doubtlessly contributed to his death on June 13, 1949, at the age of eighty. He is survived by his widow, a son James, three grandchildren and four sisters.

C. B. DRAKE

A motion was carried that this memorial be spread on the records of the Academy and a copy sent to the family.

The scientific program followed.

Dr. R. T. La Vake, Minneapolis, read a paper on "The Rationale of Blood Transfusion in the Toxemias." (See page 39.) Discussion by Dr. Albin Matson (by invitation) of Minneapolis.

Dr. John F. Briggs, of Saint Paul, then read his Inaugural Thesis on the subject "Pulmonary Mimicry in Bronchogenic Carcinoma."

THE PULMONARY MIMICRY IN BRONCHOGENIC CARCINOMA

JOHN FRANCIS BRIGGS, M.D.
Clinical Associate Professor of Medicine, University of Minnesota
Saint Paul, Minnesota

There has been a great increase in the incidence of bronchogenic carcinoma and there has been a great deal of controversy as to whether this increase is actual or apparent. The disease may occur at any age, but it is essentially a disease of men and is most frequent during the cancer decades. As far as can be determined, social level, economic level, season or climatic condition, and geographical location have nothing to do with the development of this particular disease. Ordinary occupations apparently have no effect upon the development of this condition but it appears more frequently in cobalt mine workers.

There is no pathognomonic sign of bronchogenic carcinoma. There is also no single symptom or physical

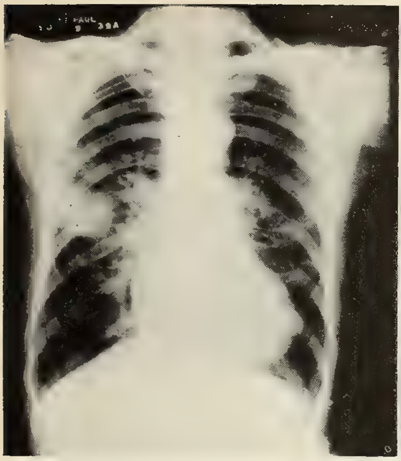

Fig. 1. Patient believed to be suffering from either pulmonary infarction or metastatic carcinoma. Ultimate diagnosis proved to be metastatic carcinoma.

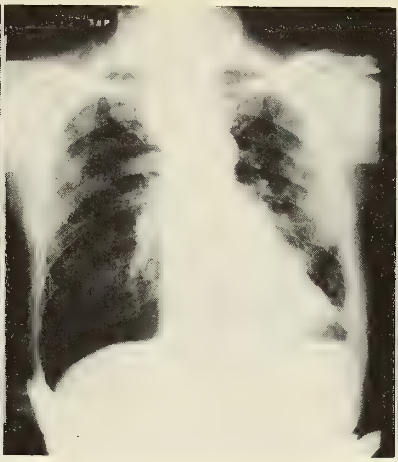

Fig. 2. Atelectasis at left base later proven to be the result of a bronchogenic carcinoma.

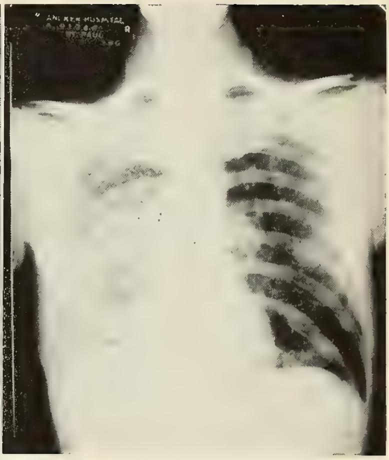

Fig. 3. Lung abscesses later proven to be bronchogenic carcinoma.

finding to suggest the disease. The inherent nature of the lesion is such that the disease can and will mimic any other type of intrathoracic disease. Ordinarily, the tumor begins within the bronchus, producing various degrees of obstruction to the bronchus. The signs and symptoms of the disease depend upon the extent of the obstruction and whether or not there is an associated infection. Bronchogenic carcinoma can mimic any other intrapulmonary condition. It is for this reason that the disease commonly becomes far advanced before it is recognized. Our duty as clinicians is to recognize the disease sufficiently early to permit surgical intervention.

The disease may occur in any part of the bronchus or in any portion of the lung. Occasionally, the tumor may arise out in the periphery of the lung. On microscopic examination, the tumors may be divided into squamous-cell carcinomas, adenocarcinomas, undifferentiated carcinomas, round-cell carcinomas and, occasionally, alveolar-cell carcinomas.

The chief means by which bronchogenic carcinoma can be diagnosed is through the routine taking of chest radiographs. Certain types of infiltration and shadows seen on the film will often lead one to suspect the presence of an underlying bronchogenic carcinoma. However, since this disease can mimic any other form of intrapulmonary lesion, it is also apparent that bronchogenic carcinoma may simulate the x-ray appearance of other types of intrathoracic disease. It is because of this power of mimicry that we must use all diagnostic aids possible to determine whether or not a given lesion is a primary lung malignancy. Occasionally, the malignancy may be associated with some other type of chronic pulmonary disease, such as tuberculosis. Since the disease has this power of imitation, it does present itself in a form suggesting other intrapulmonary disease. The diagnosis is usually made because of a high index of suspicion concerning its existence. It is well to remember that whenever a lung lesion fails to follow the course originally diagnosed, one should immediately suspect that it is a primary carcinoma.

Consultation with the roentgenologist will lead to the use of highly specialized types of x-ray technique such as bronchography, penetration films, and fluoroscopy. The roentgenologist has available many procedures that will aid him in establishing the diagnosis of a bronchogenic carcinoma. The ultimate diagnosis, however, depends upon the histological demonstration of a malignant lesion. This may be done through a biopsy of the tumor, a specimen having been obtained through bronchoscopic examination. Occasionally, tumor cells may be found in the sputum that the patient coughs up, or tumor cells may be found in the material aspirated through the bronchus. Pleural effusion, when present, may contain demonstrable malignant cells, but when these tests fail one may have to resort to open thoracotomy with inspection and biopsy of the pulmonary lesion. Once the diagnosis has been established, there is only one treatment, pneumonectomy.

Summary

It has been emphasized that bronchogenic carcinoma is increasing and that the disease is extremely difficult to diagnose. It has been pointed out that the inherent pathological nature of this condition makes it possible for this disease to simulate any other known intrathoracic disease. The signs and symptoms presented by the patient are the signs and symptoms common to all forms of chest diseases. There is no single pathognomonic sign or symptom or x-ray shadow of primary bronchogenic carcinoma. The x-ray may suggest the diagnosis, but the ultimate diagnosis must be made by biopsy investigation or open thoractomy investigation of the suspected lesion. In some instances, the diagnosis may be established by finding the tumor cells in the exudates or aspirates of the patient. Once the disease has been established as a bronchogenic carcinoma, there is no other treatment but surgical intervention.

Conclusion

Cases have been reviewed emphasizing the tremendous power of mimicry on the part of bronchogenic carcinoma. These cases also emphasize that one must constantly suspect that an individual with a chest condition may be harboring bronchogenic carcinoma, and that whenever the disease fails to follow the course ordinarily peculiar to the condition, then the clinician should suspect an underlying bronchogenic carcinoma and institute immediately those diagnostic procedures necessary to refine and resolve the diagnosis.

Discussion

Dr. S. Marx White, Minneapolis: I would like to ask Dr. Briggs what experience he has had with the Papanicolaou method as applied to the examination of sputum in cases of this type.

Dr. Briggs: Our experience has been too limited in the use of this method to answer this question.

Question: What is the difference in ratio between male and female?

Dr. Briggs: Sex ratio is about four to five males to one female.

Dr. Leo G. Rigler, University of Minnesota: Dr. Briggs, in his usual forthright, honest fashion, has given us an extraordinarily clear picture of the situation of carcinoma of the lung. This is about as lucid a presentation as I have ever heard in a short period of time. It might be interesting to observe that from a statistical standpoint in the Veterans Hospital in Minneapolis, where the patients are practically all male, carcinoma of the lung is seen almost twice as frequently as carcinoma of the stomach. I would disagree with Dr. Briggs on the question of whether there is a characteristic x-ray picture of carcinoma of the lung. There is such a characteristic picture, which, of course, as in most clinical procedures, is not pathognomonic but is about as good as one finds in tuberculosis, pneumonia or other conditions of that type. Actually, of course, we are more conservative in diagnosing carcinoma of the lung than we would be, let us say, in diagnosing pneumonia, since such a diagnosis means possibly an extirpation of the whole lung. For that reason, as Dr. Briggs has pointed out, one may wish to rely upon cytological study. Nevertheless, at some point a diagnosis must be made and a conclusion reached other than by the procedure of thoracotomy.

There is a situation in which the x-ray examination is extremely valuable in the diagnostic identification of carcinoma of the lung; for example, in the type of case in which the diagnosis of pneumonitis or unresolved pneumonia is made, a diagnosis which unfortunately frequently covers up an actual carcinoma of the lung. The demonstration of bronchial obstruction by bronchography may clarify the situation, since an obstruction of a bronchus of the second or third or fourth order is very unusual in an inflammatory process, but very common in carcinoma. In such cases, where the sputum studies are negative and the bronchoscope cannot reach the lesion, bronchography may give these final clues to establish the diagnosis.

The problem of differentiation, of course, is an extremely difficult one. This is particularly true of the peripheral lesions of the lung which we are seeing so much more frequently now than previously because of the many survey films. Fortunately, these are in a small minority of the cases of carcinoma.

The larger number arise in the root of the lung, and it is here where the x-ray examination could be of very great value. We have followed a large series of cases in which x-ray examination had been made at some time or other in the past. It is evident from this series that minimal evidences of disease in the lung may be present anywhere from six months to seven years prior to the onset of symptoms of carcinoma of the lung. Careful attention to small changes in the roentgenogram, particularly moderate enlargement of one root shadow, minor degrees of increased radiability in one lung or band-like shadows of atelectasis, might lead to a much earlier diagnosis than has heretofore been possible. These findings, I should emphasize, are those of pulmonary disease and are not necessarily indicative of carcinoma; but, once the suspicion of carcinoma is aroused as a result of a routine x-ray examination of the chest, further studies will usually lead to its identification. We shall simply have to give more attention to the minor changes which occur in the lung in the numerous routine films of the chest with which we are confronted. I am grateful to Dr. Briggs for his splendid paper.

Dr. F. F. Callahan, Saint Paul: I am very glad to hear this paper by Dr. Briggs and also Dr. Rigler's discussion. I think up to 40 years of age that the incidence of carcinoma is about 5 to 1 in males. Very often the diagnosis is made by the detection of metastatic lesions, sometimes in the brain, and sometimes in other parts of the body before the lung lesion is discovered. Recently, I have had two cases that appeared to be lymphoblastomata of the mediastinum; both turned out to be carcinoma of the lung. We were looking for Hodgkin's disease or some other type of lymphoblastoma in these two cases. One case turned out to be a very rapidly spreading carcinoma of the bronchus, and the diagnosis was made by microscopic section of an enlarged cervical lymph node. The second case was diagnosed at autopsy. I think, in making sections from lesions one finds in the bronchus that differentiation of cells is extremely important.

If carcinoma of the bronchus is to be treated surgically, the growth must be far enough from the corina, or bifurcation of the trachea, to allow good closure of the bronchial stump. For a number of years, the Mayo Clinic has been grading the cells of tumor tissue removed from the bronchus into types 1-2-3-4. I understand that surgical treatment of types 1 and 2 has been quite encouraging, and disappointing in types 3 and 4.

Dr. Thomas J. Kinsella, Minneapolis: I wish to congratulate Dr. Briggs, not only for bringing this subject to our attention, but for the most sensible way in which he has presented it. We shall never diagnose primary bronchiogenic carcinoma at an early stage unless we think about it constantly and look for it in every patient who presents a lung lesion. This tumor is probably the most treacherous of all those with which we must contend, for it may simulate pneumonia, tuberculosis, bronchiectasis, lung abscess, virus pneumonia or almost any other known lung lesion. The terms "virus pneumonia" and "unresolved pneumonia" are dangerous if used as final diagnoses. If they are accepted as diagnostic problems, then the use of such terms may be justifiable.

The figures quoted from the United States Veterans Bureau Facility at Fort Snelling on the relative predominance of bronchiogenic carcinoma over carcinoma of the stomach at that facility must not be taken at face value, for this hospital is an official chest surgery center and receives the complicated chest cases from several states, whereas, the gastrointestinal cases come only from local trritory. Consequently, an erroneous impression may be obtained, if total figures alone are

(Continued on Page 86)

A large benign chronic ulcer with steep side walls as seen in barium-filled shadow on the lesser curvature of the stomach.

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SEARLE RESEARCH IN THE SERVICE OF MEDICINE

(Continued from Page 84)

considered. I can distinctly remember that not more than four or five years ago at this same hospital where as Consultant in Chest Surgery reviewing many chest conditions, my diagnoses of primary bronchiogenic carcinoma were met with the statement that they just did not see carcinoma of the lung among their patients. The truth of the matter was that they saw these patients but did not recognize the condition as bronchiogenic carcinoma.

I feel that one should forget about doing routine sputum examinations for carcinoma cells in an attempt to discover primary bronchiogenic carcinoma, because the technique is too time-consuming and detailed to be used as a routine diagnostic procedure. Studies of bronchial secretions aspirated directly from localized areas of the lung are much more valuable but only if the examinations are made by trained personnel experienced in this work. There are pitfalls which may lead to an erroneous diagnosis. Careful bronchoscopy, particularly using the right angle and the foroblique telescopes through the bronchoscope, are valuable and may enable one to visualize many tumors of the upper lobe bronchi beyond the reach of the direct bronchoscope. Direct biopsy from a visible tumor is of much greater value than cell studies, but the latter are of extreme value where biopsy cannot be obtained. The bronchogram is very important, but it must be carefully done and properly interpreted or it loses much of its value. When confronted by an obscure lung lesion, one should exhaust all of the diagnostic means at hand including x-ray studies, bronchoscopy, bronchography, a study of aspirated secretions, as well as a number of studies for tubercle bacilli by smear technique in an attempt to establish a definite diagnosis. If a diagnosis cannot be reached by these studies and if primary bronchiogenic carcinoma is under serious consideration, one should not wait for negative culture reports for tubercle bacilli for these tests are too time-consuming. I feel rather that one should resort to exploratory thoracotomy with excision of the local lesion and immediate pathologic examination. Primary bronchiogenic carcinoma moves too rapidly to justify a long delay for special diagnostic studies. The big criticism in the use of mass x-ray surveys for the discovery of primary bronchiogenic carcinoma lies in the facts that, as ordinarily carried out, too much time is wasted in ruling out tuberculosis and such time is extremely valuable in the treatment of bronchiogenic carcinoma. I have yet to see a resectable, curable, primary bronchiogenic carcinoma from the recent Minneapolis survey. In nearly 80 per cent of the patients whom we see with primary bronchiogenic carcinoma, the disease is too far advanced to justify even an exploratory thoracotomy. While occasionally, one may derive considerable benefit from palliative resection in primary bronchiogenic carcinoma, taken by and large the amount of palliation obtained is not too great. This tumor is usually a rapidly growing type which metastasizes early and widely. Late results from treatment are somewhat similar to those of carcinoma of the stomach with considerably less than 10 per cent five-year survivals. Earlier diagnosis and earlier treatment may improve these figures.

So far as localized nodules in the lung are concerned, I believe that there is no accurate means of diagnosing these by x-ray or other studies except by local excision and immediate pathological examination. Prompt investigation of these isolated nodules may bring about recognition of a few cases of carcinoma in an early stage.

The meeting was adjourned.

A. E. Cardle, M.D., *Secretary*

HEMOCHROMATOSIS

(Continued from Page 56)

of portal circulation. The autopsy showed a very extensive anastamosis between the omentum and the peritoneum of the abdominal wall, extending from the crest of the ilium up to the diaphragm. The adhesions were very dense and firm over the liver. This shunting of the portal circulation possibly accounts for the man's fairly good health and ability to carry on from 1934 until his death.

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HOSPITAL OCCUPANCY RATE LEVELING

(Continued from Page 75)

of supplies, which will mount due to absorption of increased labor costs; and food, which will continue at present high price levels due to the federal price supports which show no signs of impermanence.

He adds, further:

"The past decade has been a period of phenomenal advance in medical science which has greatly increased the scope of hospital care and necessitated additional facilities. The possibilities of nuclear medicine and new diagnostic services indicate that the frontiers of medicine's knowledge and effectiveness will further recede. The hospital, having already been established as the health center of its community, must provide the facilities and the technical assistance to make these advances available to the sick. Additional costs again will be involved if we are to fulfill our mission of benefiting mankind in the continual battle against the misfortunes of ill health."

He advised hospital administrators to practice every technique of good management to prevent the public from assuming a disproportionate share of these rising costs, warning that adverse public opinion could damage the entire voluntary hospital system.

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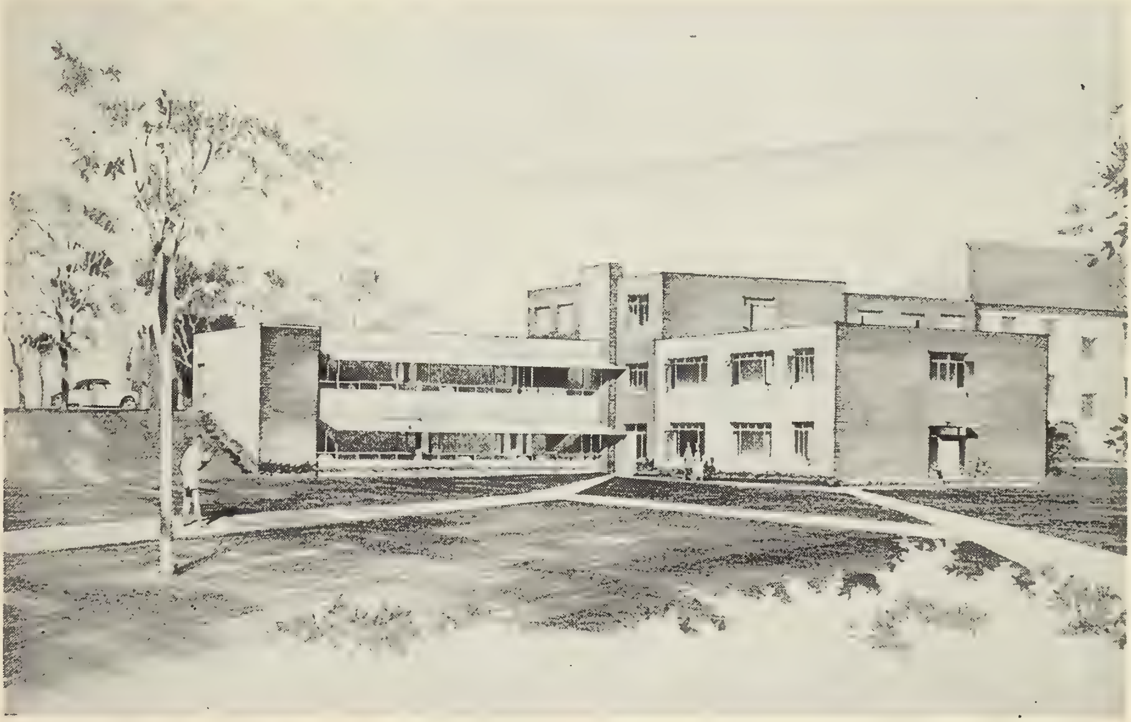

Neurologic Unit of Glenwood Hills Hospitals to be ready for service about January 15.

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THE WASHINGTON AMA MEETING

The House of Delegates of the AMA, at its meeting at Washington in December, voted to change the By-Laws by requiring yearly membership dues of not over $25.00. This year will be the first in the history of the Association that members will have ever paid any dues. The $25.00 paid last year was in the nature of a voluntary assessment to meet an emergency and was paid by 80 per cent of the membership. By December 1, 1949, it netted $2,250,000 of which $2,050,000 had been budgeted and approved for the National Education Campaign of the AMA. The emergency, though relieved, is not over. If the medical profession is going to prevent the adoption of compulsory tax-supported government medical care, educational activities will have to be continued. The use of the funds derived from dues will not be limited to the educational campaign, for the AMA has need for the wherewithal to support its everexpanding activities.

The 1950 AMA dues are payable now at the headquarters of the Minnesota State Medical Association, 496 Lowry Medical Arts Building, St. Paul 2. Members who pay county and state association dues will maintain their memberships in county and state organizations. The payment of the additional $25.00 is required for AMA membership and does not include subscription to *The Journal*. That requires an additional $12.00, making $37.00 in all. The rather anomalous situation exists whereby a physician may be a member of a component county and state association but not of the national association.

Announcement was made at the AMA convention of the retirement as of December 1, 1949, of Dr. Morris Fishbein as editor. Dr. Austin Smith, secretary of the Council of Pharmacy and Chemistry of the AMA for a number of years, became editor of *The Journal* as of December 1, 1949. Dr. Robert T. Stormant, medical director of the Federal Food and Drug Administration of the Federal Government since 1947, succeeds Dr. Smith as secretary. Dr. W. W. Bauer, director of the Bureau of Health Education of the AMA, becomes editor of *Hygeia*. Dr. Richard J. Plunkett, who has been on the editorial staff of *The Journal* since 1947, assumes the managing editorship of the nine scientific journals devoted to the specialties published by the American Medical Association.

CONGRESS ON OBSTETRICS AND GYNECOLOGY

The International and Fourth American Congress on Obstetrics and Gynecology will be held on May 14 to 19 at Hotel Statler in New York. Mornings will be devoted to general sessions, and afternoons to the program of the medical section of the Congress. Separate afternoon sessions are planned for nurses, public health persons, and hospital administrators. A special program on the economic aspects of obstetrics and gynecology will also be presented. Information as to registration, housing data and program details can be obtained by writing to Dr. Fred L. Adair, 161 East Erie Street, Chicago 11, Illinois.

INTERNATIONAL COLLEGE OF SURGEONS UNITED STATES CHAPTER

The following Minnesota surgeons were made Fellows and Associate Fellows in the United States Chapter, International College of Surgeons, at the fourteenth annual assembly of the group in Atlantic City, November 7 through 11, 1949: *Certified Fellows,* Dr. Harold G. Benjamin, Minneapolis, and Dr. John D. Brown Galloway, Minneapolis. *Associate,* Dr. Benjamin J. Palen, Minneapolis. *Advanced to Rank of Associate,* Dr. John A. Williams, Saint Paul.

In addition, the following were named Honorary Fellows in the International Chapters of the International College of Surgeons: Dr. Alfred W. Adson, Dr. Louis Arther Buie, Dr. Byrl Raymond Kirklin, Dr. Harold I. Lillie, Dr. J. Grafton Love, Dr. John Silas Lundy, and Dr. Gershom J. Thompson, all of Rochester.

AMERICAN ACADEMY OF GENERAL PRACTICE

The American Academy of General Practice will hold its assembly at St. Louis February 20 to 23. Twenty-two of the country's leading clinicians will deliver papers at the Kiel Auditorium during the session. Hotel reservations may be made by writing to the Hotel Reservation Bureau, A. A. G. P., 910 Locust Street, Room 304, St. Louis 1, Missouri.

CONTINUATION COURSE IN CANCER

A continuation course in cancer for physicians will be presented by the University of Minnesota February 16 to 18. The course is sponsored by the Minnesota State Medical Association, the Minnesota Division of the American Cancer Society, and the Cancer Control Division of the Minnesota Department of Health.

Dr. Henry K. Beecher, professor of anesthesiology at Harvard University Medical School, will be the visiting faculty member for the course and will also deliver the E. Starr Judd Lecture in Surgery on the evening of February 16.

BLUE EARTH VALLEY SOCIETY

Members of the Blue Earth Valley Medical Society, covering Faribault and Martin Counties, elected Dr. Lewis Hanson of Frost president of the organization at the annual meeting in Blue Earth on November 17. Dr. Hanson succeeds Dr. Robert Hunt of Fairmont in the post.

Other officers elected include Dr. R. O. Burmeister, Welcome, vice president; Dr. Hubert Boysen, Madelia,

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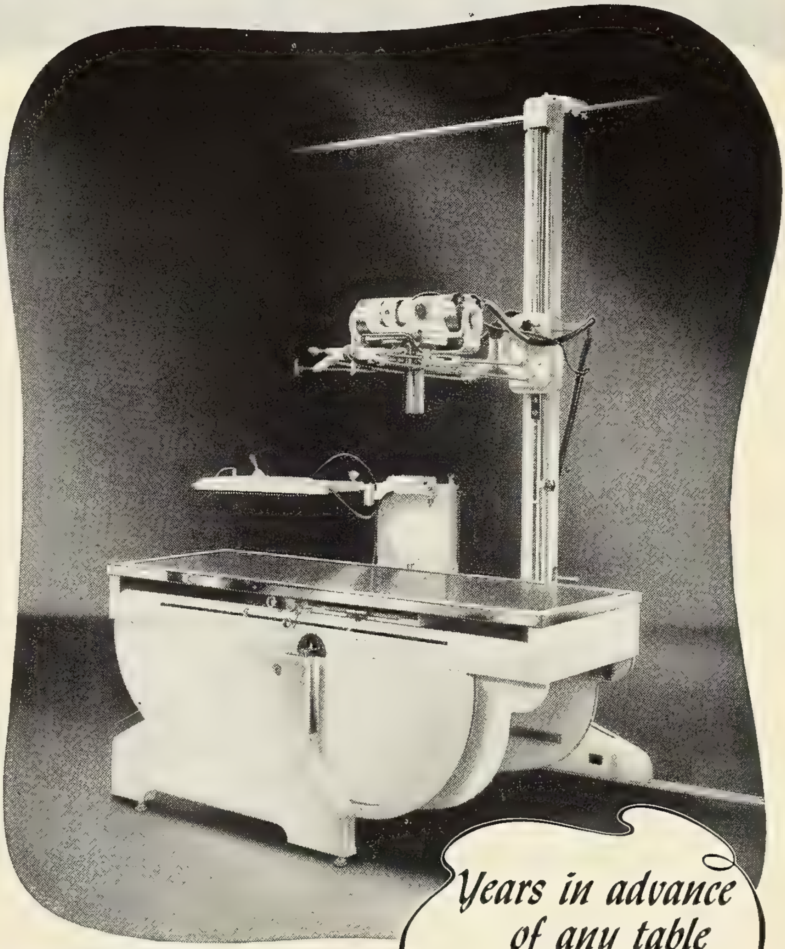

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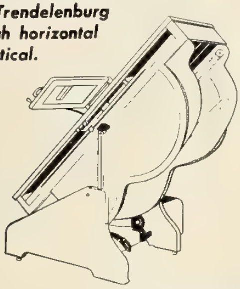
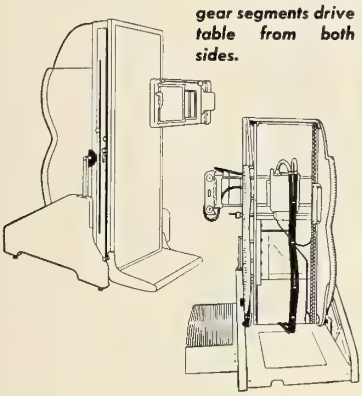


135° angulation from 45° Trendelenburg through horizontal to vertical.



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BLUE EARTH VALLEY SOCIETY

(Continued from Page 88)

secretary-treasurer; Dr. J. J. Heimark, Fairmont, delegate, and Dr. G. W. Drexler, Blue Earth, alternate delegate.

Principal speaker at the meeting was Dr. R. M. Shick, Rochester, who spoke on "The Practical Aspects of Anticoagulant Therapy."

GOODHUE COUNTY SOCIETY

Election of officers highlighted a meeting of the Goodhue County Medical Society in Red Wing on December 1. Named as president was Dr. W. R. Miller of Red Wing. Other officers elected were Dr. O. E. Larson, Zumbrota, vice president; Dr. G. F. Hartnagel, secretary-treasurer; Dr. R. F. Hedin, delegate, and Dr. G. M. B. Hawley, alternate delegate, all of Red Wing. Society members at the meeting discussed the mass chest x-ray survey to be conducted in Goodhue County.

RAMSEY COUNTY SOCIETY

Dr. F. G. Hedenstrom was named president-elect of the Ramsey County Medical Society at a meeting in Saint Paul on November 28. He will take office in 1951. Serving as president of the group during 1950 is Dr. Warner Ogden.

SOUTHWESTERN MINNESOTA MEDICAL ASSOCIATION

At the annual fall meeting of the Southwestern Minnesota Medical Association, held in Worthington, Dr. Gerrit Beckering of Edgerton was elected president. Dr. Peter J. Pankratz, Mountain Lake, was named vice president, and Dr. O. M. Heiberg, Worthington, secretary-treasurer.

Dr. Beckering and Dr. E. W. Arnold, Adrian, were elected delegates to the Minnesota State Medical Association, with Dr. C. L. Sherman, Luverne, and Dr. W. B. Wells, Jackson, as alternates.

WRIGHT COUNTY SOCIETY

At a meeting of the Wright County Medical Society in Buffalo late in November, Dr. V. T. Ryding of Howard Lake was elected president. Other officers elected at the meeting include Dr. W. E. Hall, Maple Lake, vice president, and Dr. Theodore Catlin, Buffalo, secretary.

As tuberculosis, in some aspect, is the concern of every practitioner in whatever specialty, so its teaching is the responsibility of the entire medical faculty. The phthisiologist's concern is with the segment of the problem which lies within the field of internal medicine. As the thoracic surgeon is primarily a surgeon, so the phthisiologist is primarily an internist. The more he can participate with other internists in joint clinical research and teachng enterprises the better will be the education of the students who are under their mutual guidance. CARL MUSCHENHEIM, M.D., *Am. Rev. Tuberc.*, July, 1949.

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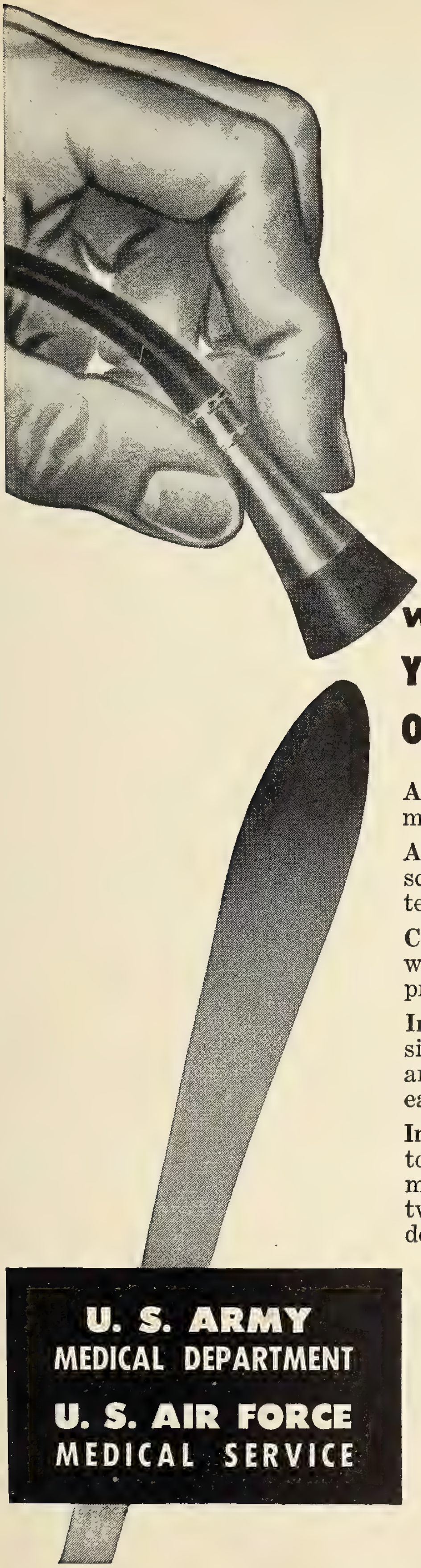

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✦ Woman's Auxiliary ✦

AUXILIARY LISTS BEST SEAL TALKS

Winners of the 1949 Christmas Seal high school radio project, sponsored by the Minnesota Public Health Association and the Woman's Auxiliary to the Minnesota State Medical Association, have been announced. They include:

High School Winners

First.—Shelly Budlong, Washington High School, Brainerd.

Second.—Janice Kinter, Greenway High School, Coleraine; Celestine Ahles, Cathedral High School, St. Cloud; Ruth Weber, St. Francis High School, Little Falls; Jeanne Fortier, Little Falls High School, Little Falls; Mary Jean Bohlinger, Mount St. Benedict Academy, Crookston; Robert Hanson, Rochester High School, Rochester; Joyce Lindell, Stillwater High School, Stillwater.

Junior High School Winners

First.—Barbara Sitzmann, Visitation Convent, St. Paul.

Second.—Anne Thompson, Laboratory School, Bemidji State Teachers College.

Honorable Mention

Senior Division.—Lorraine Hanson, Washington High School, Brainerd; John Marty, Meadowland High School, Meadowlands; Rosemary Mahoney, Good Counsel Academy, Mankato; Bill Hempel, Elbow Lake High School, Elbow Lake; Margaret Kramin, Danube High School, Elbow Lake; Elizabeth Gockowski, St. Agnes High School, St. Paul; Kathleen Lingle, White Bear High School, White Bear; Carol Arch, Central High School, Crookston; Roger L. Nelson, Rochester High School, Rochester; Donna Boelter, Blooming Prairie High School, Blooming Prairie.

Junior Division.—Eddie Roos, Central Junior High School, St. Cloud; Arlene Reed, Grand Rapids Junior High School, Grand Rapids; Barbara Bossus, Franklin Junior High School, Brainerd; Barbara Latterell, St. Francis High School, Little Falls; Marilyn Peterson, Central Junior High School, Rochester; Marlene Ebinger, Crosby High School, Crosby; Tom Uldrich, Little Falls Junior High School, Little Falls; Irene Tomhave, Washington Junior High School, Fergus Falls; Sally Clare, Stillwater Junior High School, Stillwater.

WORTHINGTON RADIO SERIES POPULAR

Mrs. O. M. Heiberg*

Now going into its third year, "Your Health Hour," a series of radio programs on health, has proved very popular with the KOWA, Worthington, listening audience.

The broadcasts, sponsored by the Woman's Auxiliary of the Southwestern Medical Society, are heard every Sunday afternoon at 2 p.m. Transcriptions supplied by the American Medical Association are used alternately with live broadcasts, presented by laymen and professional people from a six-county area.

During December, radio listeners who turned to Station KOWA learned about rheumatic fever, dodging contagious diseases, tuberculosis, good teeth for children, whooping cough.

The idea for the program developed from Health Days conducted in Pipestone and Nobles counties. Interest in the series is maintained by spot announcements calling the listeners' attention to the broadcasts. Doctors in the six counties receive a monthly card listing the topics to be covered in the broadcasts for that month. All newspapers in the six counties carry program announcements.

That the program creates general interest in health problems is indicated by requests for copies of scripts or for literature mentioned on the program.

MRS. BOIES ON NUTRITION COUNCIL

Mrs. H. E. Bakkila, president of the State Auxiliary, has appointed Mrs. L. R. Boies, Hopkins, to represent the Auxiliary on the Minnesota State Nutrition Council. The appointment was made in response to an invitation issued by Irene Netz, chairman of the organization.

Mrs. Boies is a member of the Hennepin County Auxiliary.

RANGE BRANCH ADDS NEW MEMBERS

Mrs. G. Erskine

The Range Branch of the St. Louis County Medical Auxiliary had a very successful membership tea, October 27, at the home of Mrs. L. W. Johnsrud, Hibbing. Many new members were enrolled.

* * *

Mrs. J. O. Meyer has left Grand Rapids for foreign fields. Dr. Meyer rejoined the army, with the rank of major, and they are now in Milwaukee, awaiting orders for Germany or Austria. They expect to sail some time in February. Mrs. Meyer was very active on the Grant Aid Committee and will be greatly missed.

* * *

Mrs. R. L. Bowen of Hibbing has had to curtail her activities this year due to a very serious operation.

* * *

On account of road conditions, the Range Branch will not meet again until March.

---

*Radio Chairman of the Woman's Auxiliary of the Southwestern Minnesota Medical Society.

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Call or write immediately for further information. Eight flights are scheduled for January, February and March but they are filling fast so get your reservation in early.

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In Memoriam

JOSEPH OWEN McKEON

Dr. Joseph O. McKeon of Montgomery died suddenly in San Angelo, Texas, in November, 1949. He had been civilian medical officer at Goodfellow Army Air Base since June.

Dr. McKeon was born in Montgomery, Minnesota, February 23, 1892. He obtained his M.D. degree at the University of Minnesota in 1915 and interned at the Minneapolis General Hospital. He served in the Army from 1917 to 1919 with the commission of captain.

He was a member of Phi Rho Sigma medical fraternity and the Rice County Medical Society, the Minnesota State and American Medical Associations.

Surviving are his wife and three children, James and Mary of Minneapolis and Mrs. Robert Maxeiner, Jr., of Rochester, Minnesota, and his mother, Mrs. James McKeon, of Minneapolis.

THAYER C. DAVIS

Dr. Thayer C. Davis, a practicing physician at Wadena, Minnesota, since 1922, died November 18, 1949. He was sixty-two years of age.

Dr. Davis was born at Howard Lake, Minnesota, May 5, 1887. He received the degrees of M.B. and M.D. from the University of Minnesota Medical School in 1913 and interned at the City and County Hospital, Saint Paul. He was a member of the Alpha Omega Alpha society at the University.

He practiced at Warroad from 1914 to 1918 and at Glenwood from 1918 to 1922, before locating in Wadena.

Dr. Davis was president of the First National Bank of Wadena. He was a member of the Upper Mississippi Medical Society, the Minnesota State and American Medical Associations.

Surviving are his wife; two sons, Dr. Thayer Davis, Jr. of Beaver Dam, Wisconsin, and Robert of Sheyenne, North Dakota, and a brother, Dr. Thomas Davis, Wadena, with whom he was associated in the practice of medicine.

GEORGE R. DUNN

Dr. George R. Dunn, a prominent surgeon of Minneapolis, died on December 11, 1949, at the age of sixty-one.

Dr. Dunn was born at Princeton, Minnesota, December 24, 1887. He obtained a Ph.B. degree from Hamline

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University in 1910 and his M.D. from Johns Hopkins Medical School in 1914. He interned at the Johns Hopkins Hospital for a year.

He was a fellow of the American College of Surgeons, Assistant Professor of Surgery at the University of Minnesota Medical School, and was on the staff of Northwestern Hospital in Minneapolis. He was a member of the Hennepin County Medical Society, the Minnesota State Medical Association, the American Medical Association, the Minnesota Neurological Society and the Minneapolis Surgical Society.

Surviving are his widow, a son and two daughters. His sister, Grace A. Dunn, is editor and publisher of the *Princeton Union* at Princeton, Minnesota.

LEONARD HARRIMAN

Dr. Leonard Harriman of Howard Lake, Minnesota, passed away November 25, 1949.

Dr. Harriman was born in Parishville, New York, on November 3, 1873. Later he moved to Wisconsin and at the age of twenty-four joined the Army and served in Puerto Rico during the Spanish-American war.

He received his M.D. degree at the University of Illinois medical school in 1909 and took two years of internship at St. Mary of Nazareth Hospital in Chicago,

He practiced at Lake Mills, Wisconsin, from 1911 to 1914, when he moved to Howard Lake, where he was local surgeon for the Great Northern Railway in addition to carrying on a general practice.

Dr. Harriman had been local health officer since 1918, president of the school board for many years, president of the Security State Bank, and was active in many community projects.

He was a member of the Wright County Medical Society and the Minnesota State and American Medical Associations.

Dr. Harriman is survived by his wife, the former Anna Bringman.

Health education is the application of measures to induce experiences which favorably influence knowledge, attitudes and actions for the prevention of disease and the perfection of health of the individual members of society. Ira V. Hiscock, *Pub. Health News,* Feb., 1949.

AN APPRAISAL OF MAJOR SURGERY IN A SMALL HOSPITAL

(Continued from Page 35)

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◆ Of General Interest ◆

All Minnesota physicians are invited to send to Minnesota Medicine items "of general interest" concerning themselves or their colleagues. To ensure accuracy and completeness, it is suggested that items submitted contain the answers to the age-old newspaper questions: who? what? where? when? and (in some cases) why? Only the facts are needed, since items can be edited or rewritten for consistency of style.

* * *

According to a communication from Dr. B. A. Waisbren and Dr. Jean S. Hueckel in *The Journal of the American Medical Association* of November 26, 1949, the administration of aluminum hydroxide gel with **aureomycin** in order to reduce epigastric distress results in a lowering of serum levels of aureomycin and is therefore contraindicated.

* * *

Dr. Manley F. Juergens, formerly of Thief River Falls, became associated in practice with Dr. J. W. Stuhr and Dr. J. E. Jensen in Stillwater on December 1.

The son of Dr. H. M. Juergens of Belle Plaine, Dr. Manley Juergens was graduated from the University of Minnesota Medical School in 1945. After interning at Minneapolis General Hospital, he entered military service and served in the Army Air Corps. Following his separation from the Army, he took postgraduate training at the University of Minnesota, then joined a clinic in Thief River Falls, where he practiced during the past year.

* * *

"The Psychiatric Aspects of Alcoholism" was the title of a talk given by **Dr. Gordon R. Kamman,** Saint Paul, at a meeting of the Polk County (Wisconsin) Medical Society at the Hazelden Foundation, Center City, on November 17. The Hazelden Foundation is a private institution, located near Center City, for the rehabilitation of male alcoholics after they have been discharged from medical care.

* * *

Dr. Robert Davis Mooney has opened an office at Highland Medical Center, 670 South Cleveland Avenue, Saint Paul, for the practice of internal medicine.

* * *

Minnesota has embarked upon an extensive five-year program of state-wide **professional postgraduate education.** Physicians, dentists, nurses and pharmacists are being invited to a series of district seminars devoted to heart disease, cancer and psychosomatic medicine.

Each seminar consists of eight consecutive weekly meetings, with two lecturers usually appearing for one hour each. There are six lectures on heart disease, six on cancer and four on mental health.

The first of the seven seminars scheduled for the 1949-1950 season was held at Bemidji, with an average attendance of twenty-five physicians and thirty nurses at each meeting. The second seminar, held in Fergus Falls, attracted an average of thirty-five physicians, fifty nurses and thirty dentists for each meeting. Interest in the seminars has been so favorable that several Minnesota communities have voluntarily requested that they be considered for future sites.

The programs are planned and organized by the Minnesota Department of Health with the assistance of the University of Minnesota Schools of Medicine, Dentistry, Nursing and Pharmacy, the Minnesota State Medical Association. the Minnesota Nurses Association and the Minnesota State Pharmaceutical Association.

* * *

Dr. David A. Sher, a pediatrician associated with the Lenont-Peterson Clinic in Virginia, recently received a five-year appointment to the newly created Housing and Rehabilitation Commission of the City of Virginia. At the organization meeting, Dr. Sher was elected chairman of the commission.

* * *

Dr. B. O. Mork, Jr., Worthington, who is now studying for an advanced degree in public health at the University of Minnesota, has been replaced as director of District 5 of the Minnesota Department of Health by Dr. Helen B. Wolff of Worthington. Dr. Wolff received her medical and public health training in California. Her husband is a businessman in Worthington.

* * *

Dr. W. W. Haesly, a former Winona resident, opened offices for the practice of medicine in Wykoff in the middle of November. A graduate of the Northwestern University Medical School in 1948, Dr. Haesly served his internship at St. Luke's Hospital in Chicago.

* * *

At a health clinic conducted in Red Wing on November 14, more than 125 members of the high school junior and senior classes received vaccinations and Schick tests. In charge of the clinic were **Dr. George M. B. Hawley** and **Dr. Richard B. Graves,** both of Red Wing.

* * *

Dr. Hanns C. Schwyzer has opened an office at 2069 Ford Parkway, Saint Paul, for the practice of general surgery. Dr. Schwyzer formerly was associated with Dr. Martin Nordland in Minneapolis.

* * *

The first issue of a **Mayo Clinic newspaper,** aimed to promote a more neighborly relationship between the clinic's medical and business staffs, was published on November 26. In an article on the aims of the new publication, the editor, Bill Holmes, a former newspaper reporter, stated that in the early days of the Mayo Clinic, when both business and

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medical staffs were small, "inter-department contact was a simple, neighborly process." Due to the "tremendous growth of the organization," he continued, the "amiable open-an-adjoining-door relationship" disappeared. The newspaper, it was hoped, would help to restore that neighborly feeling.

Tabloid size, 12 by 17 inches, the first issue carried four pages of feature stories and reports about clinic personnel. It was distributed to more than 2,500 "subscribers." Plans called for monthly publication at first, switching later to a two-week publication schedule. In the meantime a contest to select a name for the paper was to be held.

Among those in attendance at the meeting of the United States Chapter of the International College of Surgeons in Atlantic City early in November was **Dr. T. A. Lowe**, South Saint Paul.

* * *

Dr. Charles A. Haberle, formerly of Thief River Falls, has joined the staff of the Arrowhead Clinic in Duluth. A graduate of the University of Minnesota Medical School, Dr. Haberle received his postgraduate training at the University Hospitals. For the past three years he has been associated with a clinic in Thief River Falls.

At the annual dinner meeting of the Minnesota Chapter of the **American Medical Technologists** in Minneapolis on December 3, the national society of the AMT announced the reappointment of Jack O. Kirkham for a third year as its state representative. Chester Neese, Fergus Falls, was elected president of the state chapter.

* * *

Dr. Frederick L. Schade, Worthington, was one of the Minnesota physicians who attended a meeting of the Central Association of Obstetricians and Gynecologists in Oklahoma City early in November.

* * *

It was announced in November that **Dr. Fred Behling** of Moorhead planned to establish residence in Oklee on December 1 and that he had accepted a proposal by the board of the Oklee Community Hospital Association to establish a practice in a medical clinic then being constructed in the city. A graduate of the University of Minnesota, Dr. Behling has been on the staff of a Denver general hospital for the past year.

* * *

On December 1, **Dr. Brand A. Leopard** closed his office in Albert Lea for an indefinite period of time. The reason announced for the closing was ill health.

* * *

Dr. Thomas H. Seldon, of the section on anesthesiology at the Mayo Clinic, was installed as president of the American Association of Blood Banks at a meeting of the organization in Seattle on November 5.

* * *

As principal speaker at a meeting of the Saint Paul Business and Professional Women's Association on November 10, **Dr. Harvey O. Beek,** Saint Paul, discussed psychosomatic medicine and emotional disorders.

* * *

The Duluth Chamber of Commerce opened its 1949-1950 **industrial safety school** series on December 7 with the first of four monthly sessions on industrial safety work. The opening session was devoted to medical problems, and most of the talks were given by members of the St. Louis County Medical Society.

Dr. Frederick J. Kottke, of the University of Minnesota Division of Physical Medicine, speaking at the general meeting, discussed "The Importance of Rehabilitation Therapy for the Injured Worker." Speakers at various section meetings of the safety school were Dr. G. J. Strewler, Dr. J. J. Coll, Dr. M. G. Fredericks, Dr. R. L. Nelson, Dr. John H. Peterson, Dr. D. V. Luth, and Dr. E. C. Strauss, all of Duluth, and Dr. P. B. Monroe, Cloquet.

* * *

Dr. Wayne C. Rydburg of Brooten was honored at a dinner at the Glenwood Community Hospital on November 29. After many years of practice in the area, he planned to leave the community at the end

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of December to become company physician for the Flour City Ornamental Iron Works in Minneapolis.

A member of the Glenwood Hospital staff since the opening of the hospital in 1940, Dr. Rydburg served as acting chief-of-staff last year. He was secretary of his county medical society for three years and had been named president-elect. He was president of the Brooten school board and had served as mayor of Brooten for five years.

* * *

It was announced on December 1 that **Dr. Kenneth L. Nelson** of Clara City planned to move to Balaton on December 15 to open an office for the practice of medicine. The village of Balaton has been without a resident physician for several years.

* * *

Dr. Carl C. Chatterton was the principal speaker at a meeting of Section 1 of the Child Psychology Study Circle in Saint Paul on December 5. The title of his talk was "Off to a Good Start." Dr. Chatterton is chief-of-staff of the Gillette Hospital for Crippled Children and is an assistant professor of clinical orthopedic surgery at the University of Minnesota Hospitals.

* * *

At a meeting of the **Minneapolis Chapter, American Academy of General Practice,** in Minneapolis late in November, Dr. Willis L. Herbert was elected president to succeed Dr. Willis M. Duryea. Other officers include Dr. C. W. Del Plaine, who succeeds Dr. J. H. Higgins as vice president, and Dr. Alexander J. Ross, who succeeds Dr. James A. Blake as secretary-treasurer.

* * *

Three county medical societies held a joint meeting in New Ulm on November 17. The three groups were the Brown-Redwood-Watonwan County Medical Society, the Blue Earth County Medical Society, and the Nicollet-Le Sueur County Medical Society. Principal speaker at the combined meeting was **Dr. Ben Sommers,** Saint Paul, who discussed the treatment of heart diseases.

* * *

After thirteen years of practice at Albert Lea, **Dr. Robert R. Swanson** moved to Madison and became associated with the Madison Clinic on December 1. In his new position, Dr. Swanson is chief of the eye, ear, nose and throat department of the clinic, replacing Dr. Walter N. Lee, who recently moved to California.

After graduating from the University of Minnesota Medical School, Dr. Swanson spent three years specializing in eye, ear, nose and throat diseases at Western Reserve University Hospital in Cleveland. Following that period of training, he opened his offices in Albert Lea.

* * *

Dr. Edward B. Kinports, International Falls, and his family spent two weeks in November at a ranch near Tucson, Arizona. While in Tucson, Dr. Kinports took a special course at St. Mary's Hospital.

Members of the Winona County Public Health Association, meeting in Winona on November 10, heard **Dr. Karl H. Pfuetze,** superintendent of Mineral Springs Sanatorium, discuss the benefits of mass chest x-ray surveys and describe the procedures used in modern sanatorium treatment of tuberculosis.

* * *

A talk on allergy was given by **Dr. Albert V. Stoesser,** clinical professor of pediatrics at the University of Minnesota, at a meeting of the Chelsea Heights Child Psychology Study Circle on November 22.

* * *

Mrs. E. H. Hartung, the wife of Dr. Elmer H. Hartung of Claremont, died in a Rochester hospital on November 30 at the age of forty-two.

* * *

Seven Mayo Clinic physicians were honored as new emeritus staff members at the clinic's annual staff meeting in Rochester on November 21. The six men and one woman each received an honorary scroll and a gift from the clinic staff. The new emeritus members are Dr. Walter C. Alvarez, Dr. Harry H. Bowing, Dr. Arthur U. Desjardins, Dr. Della G. Drips, Dr. Bert E. Hempstead, Dr. Henry W. Meyerding and Dr. Robert D. Mussey.

Mr. A. J. Lobb, legal advisor and former associate secretary of the clinic board of governors, also became an emeritus member at the meeting.

In the election of officers for 1950, Dr. H. I. Lillie was named president of the Mayo Clinic staff. Dr. F. P. Moersch was elected vice president; Dr. E. N. Cook, secretary; Dr. C. W. Rucker, first counselor, and Dr. C. H. Watkins, second counselor.

Dr. James F. Weir, retiring staff president, presided at the meeting. In his talk he paid tribute to Dr. Charles and Dr. William Mayo on the tenth anniversary year of their deaths.

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* * *

Open house was held on December 4 by **Dr. Ralph B. Johnson** in his new office building in Lanesboro. The new medical office is constructed of brick and tile and contains a waiting room, x-ray room, minor surgery room and two examining rooms.

* * *

Dr. Mellvin E. Lenander, St. Peter, was appointed on December 5 by Governor Luther Youngdahl to the State Board of Medical Examiners, to fill the unexpired term of Dr. Albert Fritsche, New Ulm, who had resigned.

* * *

Offices for the practice of medicine were opened late in November in Richfield (Minneapolis suburb) by **Dr. Marie A. Smith.** A graduate of the University of Illinois, Dr. Smith served her internship at DePaul Hospital, Norfolk, Virginia. She then practiced in maternal welfare and well-baby clinics in Chicago before beginning a residency at the University of Chicago's Lying-In Hospital. Later she served in residencies at Maternity Hospital and St. Mary's Hospital in Minneapolis, then practiced in clinics in Dwight, Illinois, and Milwaukee, Wisconsin.

* * *

On November 16, at the fourth weekly session of the medical postgraduate seminar held in Fergus Falls, **Dr. Robert A. Green** and **Dr. Robert Hebbel** were the principal speakers. Dr. Green, instructor in internal medicine at the University of Minnesota, spoke on "Heart Failure," and Dr. Hebbel, assistant professor of pathology at the University, discussed "Use of Biopsy in Cancer Diagnosis."

* * *

Dr. Peter H. Cremer was honored by being named Eminent Citizen of Hastings at an honor assembly held in Hastings on November 28, attended by Governor Luther Youngdahl and high ranking officials of the Minnesota Veterans of Foreign Wars, sponsors of the event. Said the main speaker of the evening in paying tribute to the physician: "Dr. Cremer is a person who put the health of the people above the practical phase of his profession." And he added, "He is more of a health keeper than a bookkeeper."

* * *

Dr. W. W. Brown, formerly of Minneapolis, has opened offices for the practice of medicine at Big Lake, which has been in need of a physician for several years.

* * *

A Duluth physician, **Dr. Anderson C. Hilding,** presented a paper at the fiftieth anniversary meeting

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of the Chicago Otological Society in Chicago on December 5. His paper was entitled "Absorption of Air from Various Parts of the Respiratory Tract and Its Relationship to Postoperative Lung Complications."

* * *

Dr. Morris Fishbein, former editor of the J.A.M.A., has joined the staff of *Postgraduate Medicine,* a publication edited by Dr. Charles W. Mayo, Rochester, and published in Minneapolis. It was announced that as a contributing editor, Dr. Fishbein would have a free hand in writing editorials, a column on medicine abroad, and his well-known "Dr. Pepys' Diary."

* * *

At a meeting of the city council in Crookston on November 8, **Dr. Russell O. Sather** of the Northwestern Clinic was named city health officer, member of the city board of health, and water, milk and cream inspector. All three positions were formerly held by the late Dr. L. L. Brown. Dr. Sather was appointed to the offices by Dr. M. O. Oppegaard, mayor of Crookston.

On November 15, at a meeting in Bemidji of hospital administrators and staff members from the northwest part of the state, Dr. Sather was appointed a member of a three-man committee to study the shortage of nurses in northern and rural areas of Minnesota. Appointed with Dr. Sather were **Dr. J. A. Cosgriff,** Olivia, and **Dr. W. L. Burnap,** Fergus Falls. The committee will report to the governor's committee on nursing in Minnesota.

* * *

Problems in setting up rural health services were discussed by **Dr. A. B. Rosenfield,** director of District 6 of the Minnesota Department of Health, at a meeting of the Saint Paul Area Public Health Council on November 16.

* * *

Dr. Samuel E. Bigelow joined the staff of the Fergus Falls State Hospital on December 1. Dr. Bigelow went to Fergus Falls from Clinton, Iowa, where he had been associated with the Independence State Hospital for more than a year. Before that, he was on the staff of the Sante Fe Railroad Hospital at Fort Madsen, Colorado.

* * *

It was announced on November 9 that **Dr. J. A. Watkins** would soon become a member of the newly formed Cottonwood County Clinic in Windom. At the time of the announcement, Dr. Watkins was completing a residency in anesthesia at the University of Minnesota. He has taken postgraduate training at Wayne County Hospital in Michigan.

* * *

Dr. Charles W. Mayo and **Dr. Waltman Walters,** Rochester, have been appointed members of the national American Legion medical advisory board for 1950.

Open house was held at the newly constructed Edina Clinic on November 23. Occupants of the modern two-story structure include **Dr. C. V. Rockwell** and **Dr. R. G. Tinkham.**

* * *

In Duluth on November 11, **Dr. Mary McCoy** celebrated her nintieth birthday anniversary. Although she retired from practice in 1938, Dr. McCoy still maintains an active interest in medicine.

A graduate of the University of Michigan Medical School, Dr. McCoy began practice in Duluth in 1890, shortly after completing her internship at a Columbus, Ohio, hospital. The start of her medical career, she recalls, had a reverse twist: she promptly contracted typhoid fever and spent the first seven months of her practice as a patient.

Two of Dr. McCoy's sisters also became physicians. One, Dr. Theresa Abt, still practices in Chicago and was in Duluth to celebrate Dr. McCoy's birthday. The other sister is the late Dr. Helene K. Knauf of Jamestown, North Dakota.

* * *

Dr. Harold W. Hermann has become associated in the practice of pediatrics with Dr. A. E. Karlstrom in Minneapolis. Dr. Hermann formerly was in practice in Caledonia with Dr. J. J. Ahlfs.

* * *

A husband and wife, both physicians, began practice in Jordan on November 19. They are **Dr. and Mrs. Paul Strahler,** both graduates of the College of Medicine at Marquette University. They both served their internship at the Medical Center in Jersey City, N. J.

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* * *

Dr. Albert Faulconer, Rochester, presented a paper entitled "Some Observations on Post-Anesthetic Encephalopathy" at the fourteenth annual assembly of the United States Chapter, International College of Surgeons, in Atlantic City on November 11.

* * *

Announcement was made on December 8 that **Dr. Francis W. Lynch** of Saint Paul had been elected vice president of the American Academy of Dermatology and Syphilology.

* * *

Among the Minnesota physicians who attended a **continuation course** in traumatic and pediatric surgery at the University of Minnesota November 10 through 12 were Dr. Robert Gruys, Windom; Dr. B. W. Bunker and Dr. Frank E. Mork, Anoka; Dr. A. H. Borgerson, Long Prairie; Dr. Clarence Jacobsen, Chisholm, and Dr. Franklin C. Anderson, Owatonna.

* * *

In Brainerd, **Dr. W. E. Fitzsimons** and **Dr. M. D. McGeary** have moved into new offices in the east end of the Benson Building. Their new quarters include a waiting room and six examining rooms, all air-conditioned and modern in design. Associated with them in the clinic is a dentist, Dr. J. E. Echternacht.

* * *

It was announced on December 1 that **Dr. Albert C. Martin** would begin medical practice in Luverne about February 1. At the time of the announcement Dr. Martin was located in Harvey, Illinois.

* * *

Dr. Frederic J. Kottke, associate professor of physical medicine at the University of Minnesota, spoke on "Goals of Rehabilitation" at a meeting of the Minneapolis and Hennepin County Community Chest and Council on December 14.

* * *

At the AMA mid-year clinical session in Washington, D. C., on December 6, **Dr. A. B. Baker** and **Dr. Joe R. Brown** described rehabilitation possibilities of persons suffering from various neurological disorders. The basis of their presentation was the work done at the Minneapolis Veterans Hospital. Dr. Baker is director of neurology at the University of Minnesota, and Dr. Brown, who is now at the Mayo Clinic, has been on the University and Minneapolis Veterans Hospitals staffs.

* * *

The city of St. Peter acquired a new physician in December when **Dr. Harold S. Orwoll** became a staff member of the St. Peter Clinic. A graduate of the University of Chicago Medical School in 1946, Dr. Orwoll served his internship at Chicago Memorial Hospital. He then practiced at the Brewster Clinic in Holdrege, Nebraska, before moving to St. Peter. In his new location he is associated in practice with Dr. E. G. Olmanson and Dr. Helge Sandelin.

Mantoux tests were administered to children in Jackson County schools during November and early December. The testing was done under the direction of **Dr. Helen B. Wolff,** medical director of District 5 of the Minnesota Department of Health.

* * *

Dr. Herman J. Moersch, Rochester, has been appointed a member of the executive committee of the Minnesota Public Health Association.

* * *

Dr. James M. Thomson has opened offices for the practice of medicine at the Edina Medical Center, 3939 West Fiftieth Street, Edina (Minneapolis suburb). Offices are maintained in the same building by Dr. Harry C. Jensen and Dr. Francis M. Walsh. Dr. Irvin H. Moore, who formerly was located in the building, has moved his offices to 5013 France Avenue.

* * *

At the annual meeting of the **Interurban Academy of Medicine** in Duluth on November 16, Dr. James Easton, Superior, was elected president to succeed Dr. W. J. Strobel, Duluth. Other officers named were Dr. A. J. Bianco, Duluth, vice president, and Dr. Milton Finn, Superior, secretary-treasurer.

The principal speaker at the meeting was Dr. John S. Hirschboeck, Milwaukee, who spoke on "Significance of the Blood in Medical Diagnosis."

* * *

Dr. Herbert Plass, Minneapolis, discussed voluntary health insurance at a meeting of the Minneapolis branch of the American Association of University Women on November 14. Dr. Plass is co-chairman of the Hennepin County Medical Society's speakers bureau. The meeting was the second of a series devoted to national health problems.

* * *

It was announced on December 2 by **Dr. Eugene L. Zorn** that his practice in Erskine would be taken over on a part-time basis by two Red Lake Falls physicians. Dr. Lester N. Dale and Dr. James H. Reinhardt of Red Lake Falls planned to provide Erskine with a physician's services on two full days and two half days each week.

* * *

The offices of **Dr. Willmar C. Rutherford** and **Dr. Robert L. Cushing** have been moved into a newly constructed building at 505-507 Washington Street in Brainerd.

* * *

Why don't more college-trained women reach the top of their profession? This was the question that four professional women, including **Dr. Ruth Boynton,** director of student health at the University of Minnesota, attempted to answer at a meeting of the Minneapolis branch of the American Association of University Women on December 5.

The four women—a physician, a dentist, a lawyer and an architect—agreed that the biggest problem a professional woman faces is the prejudice of other women. A woman, it was suggested, feels inferior to a man, and to boost her morale she believes that

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other women can't be as capable as other men. Therefore she refuses to consult a professional woman.

* * *

Dr. John D. Camp, Rochester, presented a paper entitled "The Roentgenologic Significance of Intracranial Calcification" at a meeting of the Radiological Society of North America in Cleveland early in December. Other Rochester physicians attending the meeting included Dr. J. R. Hodgson, Dr. D. G. Pugh and Dr. Martin Van Herik.

* * *

The **University of Minnesota** now ranks second in enrollment of full-time students. According to a survey by Dr. Raymond Walters, the University of California leads the field with an enrollment of 43,426 students, the University of Minnesota is second with 24,684, and the University of Illinois is third with 22,854. There seems to be no unanimity of opinion as to which of all the universities in the country is the best.

* * *

Dr. Andy Hall of Mt. Vernon, Illinois, was chosen the General Practitioner of the Year by the House of Delegates at the Third Clinical Session of the AMA in Washington, D. C., in December. Dr. Hall, still active at the age of eighty-four, has been mayor of Mt. Vernon, head of the township board, chairman of his Republican county committee, Illinois director of public health, a company surgeon in the Spanish-American War and chief of surgery in a base hospital in World War I, secretary and president of his county medical society, president of the Southern Illinois Medical Society and a councilor to the Illinois State Medical Society.

* * *

The health magazine **Hygeia,** published by the AMA since 1923, will change its name to Today's Health beginning with the March, 1950, issue. The new name is more descriptive of the aims and contents of the magazine. Beginning with the January issue, the magazine will be edited by Dr. W. W. Bauer, with Dr. William Bolton as associate editor.

* * *

Dr. H. O. McPheeters and **Dr. C. V. Kusz,** both of Minneapolis, presented a discussion on "Varicose Veins and Thrombophlebitis" at a meeting of the Stearns-Benton County Medical Society in St. Cloud on December 15.

* * *

Dr. Irving C. Bernstein, who was on leave from the University of Colorado School of Medicine and was associated with the Oliver Clinic in Graceville for the last six months of 1949, has returned to his post in Colorado. He is in the department of psychiatry of the medical school, located in Denver.

* * *

At the annual meeting of the **Minnesota Obstetrical and Gynecological Society,** held in Saint Paul on December 2, Dr. James Swendson, Saint Paul, was elected president of the group. Other officers named were Dr. W. F. Mercil, Crookston, vice president, and Dr. John A. Haugen, Minneapolis, secretary-treasurer.

* * *

Dr. John Noble, who recently completed a residency in medicine at Augustana Hospital, Chicago, became associated with the Oliver Clinic in Graceville on January 1. Dr. Noble is a graduate of the University of Illinois College of Medicine.

* * *

HOSPITAL NEWS

At the annual meeting of the medical staff at **Abbott Hospital,** Minneapolis, in early December, Dr. O. J. Campbell was named staff president. Dr. Campbell, a clinical professor of surgery at the University of Minnesota, has been a member of the Abbott Hospital staff for twenty years.

Other officers elected include Dr. John Haugen, vice president, and Dr. Walter Hoffman, secretary.

* * *

A sale of articles made by patients at **Glen Lake Sanatorium,** held at the Dayton Company in Minneapolis in November, brought in $2,805.85 in proceeds. The sale was sponsored by the Woman's Auxiliary to the Hennepin County Medical Society, which reported that the proceeds were a substantial increase over the previous year's sale.

* * *

BLUE CROSS-BLUE SHIELD NEWS

Minnesotans received over $1,000 000 in Blue Shield medical-surgical benefits during the first eleven months of this year. In November alone, Blue Shield paid three and a half times as many claims as during the same month in 1948.

Minnesota Blue Shield paid 3,195 claims in November, 1949—an average of 106.5 claims a day. In November, 1948, Blue Shield paid 886 claims—an average of 29.5 claims a day. In medical-surgical benefits this amounted to $83,413.62 more in November, 1949, compared with the November, 1948, Blue Shield benefits.

To date this year, Blue Shield subscribers have received $1,026,814.53 in medical-surgical benefits. Last year, Blue Shield subscribers received $152,224 in medical-surgical benefits during the same eleven-month period.

Enrollment in Minnesota Blue Shield has increased to cover 244,419 persons as of October 31, 1949.

The number of Minnesota doctors participating in Blue Shield has also increased. Fourteen doctors joined Blue Shield in November, making the total Minnesota doctors participating in Blue Shield 2 568. There is a considerable number of newly licensed doctors, however, who have not sent in their enrollment cards. Blue Shield urges all doctors who haven't as yet sent in their cards to do so as soon as possible.

Soon after the first of the year, Minnesota Medical Service, Inc., will mail statements of Blue Shield earnings during 1949 to all doctors to whom Blue Shield has made payments in excess of the amounts listed below:

State of Minnesota return—payments in excess of $500 per year

Federal Income Tax return—payments in excess of $600 per year

Cost of hospital services has continued to increase, and a greater number of Blue Cross subscribers have used hospital care. The average length of stay in the hospital for Blue Cross patients has decreased, however.

From January through October this year, payments to hospitals for Blue Cross subscribers' care amounted to $6,931,257.16—an increase of $1,190,586.87 over the amount paid out during this same period in 1948.

A review of the national scene shows an enrollment of 12,554,012 persons in United States and Canada in seventy-three Blue Shield or other non-profit prepaid medical service plans, as of June 30, 1949.

More than 35,000,000 persons in the United States and Canada were enrolled in non-profit Blue Cross hospital care plans on September 30, 1949. Blue Cross has enrolled 22.11 per cent of the total population of the forty-seven States and the District of Columbia served by Blue Cross, and 22.99 per cent of the combined population in the seven Canadian provinces served by Blue Cross plans.

Eight Blue Cross plans now have an enrollment of more than 1,000,000 members. Minnesota's Blue Cross plan is nearing that enrollment figure with 963,111 persons in Minnesota enrolled as of October 31, 1949.

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Surgical Technique, Surgical Anatomy and Clinical Surgery, four weeks, starting February 6, March 6.
Surgery of Colon and Rectum, one week, starting March 6.
Esophageal Surgery, one week, starting June 5.
Breast and Thyroid Surgery, one week, starting June 26.
Thoracic Surgery, one week, starting June 12.
Gallbladder Surgery, ten hours, starting April 24.
Fractures and Traumatic Surgery, two weeks, starting April 17.
GYNECOLOGY—Intensive Course, two weeks, starting February 20.
Vaginal Approach to Pelvic Surgery, one week, starting March 6.
OBSTETRICS—Intensive Course, two weeks, starting March 6.
PEDIATRICS—Intensive Course, two weeks, starting April 3.
Personal Course in Cerebral Palsy, two weeks, starting July 31.
MEDICINE—Intensive General Course, two weeks, starting April 24.
Hematology, one week, starting May 8.
Gastro-Enterology, two weeks, starting May 15.
Liver and Biliary Diseases, one week, starting June 5.
Gastroscopy, two weeks, starting March 6.
DERMATOLOGY—Formal Course, two weeks starting May 8. Informal Clinical Course every two weeks.
UROLOGY—Intensive Course, two weeks, starting April 17.
Cystoscopy, ten-day Practical Course, every two weeks.

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

HANDBOOK OF MEDICAL MANAGEMENT. Milton Chatton, A.B., M.D., Instructor in Medicine, University of California Medical School; Sheldon Margen, A.B., M.D., Clinical Instructor in Medicine and Research Associate in Medicine, University of California Medical School; and Henry D. Brainerd, A.B., M.D., Assistant Clinical Professor of Medicine and Pediatrica, University of California Medical School, Assistant Clinical Professor of Pediatrics, Stanford University School of Medicine, Physician-in-Charge, Isolation Division of San Francisco Hospital. 476 pages. Price $3.00. Palo Alto, California: University Medical Publishers, 1949.

FROM THE HILLS. An Autobiography of a Pediatrician. John Zahorsky, M.D. 387 pages. Price $4.00, cloth. St. Louis: C. V. Mosby Co., 1949.

CONGENITAL ANOMALIES OF THE HEART AND GREAT VESSELS. Thomas J. Dry, M.D., et al., of Mayo Clinic. 68 pages. Illus. Price $4.50, cloth. Springfield, Illinois: Charles C. Thomas, 1949.

ESSENTIALS OF OBSTETRICAL AND GYNECOLOGICAL PATHOLOGY. Second Edition. Robert L. Faulkner, M.D., F.A.C.S. Assistant Professor of Gynecology, Western Reserve Medical School; Associate Gynecologist, University Hospitals of Cleveland, Ohio. 357 pages. Illus. Price $8.75, cloth. St. Louis: C. V. Mosby Co., 1949.

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CLINICAL OPHTHALMOLOGY FOR GENERAL PRACTITIONERS AND STUDENTS. H. M. Traquair, M.D., F.R.C.S., Ed., Consulting Ophthalmic Surgeon, Royal Infirmary, Edinburgh; Ophthalmic Surgeon, Chalmers Hospital, Edinburgh; Oculist to the Edinburgh Municipal Hospitals; Late Lecturer on Diseases of the Eye, Edinburgh University. 264 pages. Illustrated. St. Louis: The C. V. Mosby Company, 1948. Price $9.00.

This book was written specifically for the use of general practitioners and students. It is short and comprehensive, covering the common office ophthalmological problems.

FRANK ADAIR, M.D.

STEDMAN'S MEDICAL DICTIONARY. Seventeenth revised edition. Edited by Norman Burke Taylor, M.D., University of Western Ontario. 1361 pages. Illus., including color plates. Price $8.50 with thumb index; $8.00 without thumb index. Baltimore: Williams and Wilkins Company, 1949.

The seventeenth edition of this well-known medical dictionary is a useful and attractively bound reference book. In the preparation of this revision, the publishers state, obsolete words were deleted and old definitions revised. Most of the trade names found in the last edition have been removed, and no new ones have been added. The inclusion of brief biographical sketches of the principal figures in the history of medicine constitutes a new feature of the dictionary.

The book is well illustrated with clear line drawings and several color plates. Though no more at fault than many other dictionaries, this volume would be improved if the definitions were set in slightly larger type.

J.H.L.

CONTROL OF PAIN IN CHILDBIRTH; ANESTHESIA, ANALGESIA, AMNESIA. By Clifford B. Lull, M.D., F.A.C.S., F.I.C.S., Director, Division of Obstetrics and Gynecology, Philadelphia Lying-in Unit, Pennsylvania Hospital, and Robert A. Hingson, M.D., F.I.C.S., F.A.C.A., F.I.C.A., Associate Professor of Obstetrics; Anesthesiologist, Department of Obstetrics, Johns Hopkins University and Hospital; Surgeon, United Public Health Service; with an introduction by Norris Vaux, M.D. 3rd ed. rev. and enlarged. 522 pages Illus. Philadelphia: J. B. Lippincott Company, 1948. Price $12.00.

In reading the first edition of Lull and Hingson's "Control of Pain in Childbirth," one immediately gets the impression that the book was written as an epitome on the use of intermittent caudal anesthesia. This is understandable in view of the introduction and popularization of this method of relief of pain in labor and delivery by the authors.

The third edition brings the reader up to date on caudal anesthesia, results and techniques, with additional material, such as modifications in caudal techniques in very obese women and a section entitled "A Further Evaluation of Caudal Anesthesia" in reviewing the literature from the time of the first edition to the present. The paragraph on the use of continuous caudal anesthesia in the hypertensive toxemias has been expanded. The recent work done by Whitacre on the electro-encephalographic changes showing reversion toward a more normal brain wave pattern after relief of vasospasm by regional nerve block is quoted as support for the use of the intermittent caudal technique in eclampsia.

An entirely new section on the place of intravenous anesthesia by Louis M. Hellman of Johns Hopkins is a worth-while addition to the book. Another valuable addition is the fairly extensive description of the techniques and results of saddle-block anesthesia as used by Parmley and Adriani and in Dieckmann's Clinic. In the same vein is a new chapter on continuous spinal anesthesia and its use in obstetrics.

The book concludes with another new chapter, "The Early Care of the Newborn Infant."

This present edition, as its predecessor, is the best work available on intermittent caudal anesthesia in obstetrics and the apparent over-emphasis of this phase of relief of pain in childbirth in no way detracts from the value of the book, since other methods of pain relief are adequately discussed. The volume takes its place as one of the best in a difficult and everchanging field of medicine.

Albert F. Hayes, M.D.

INVITED AND CONQUERED. J. Arthur Myers, Ph.D., M.D., Minnesota Public Health Association. 737 pages, 356 illustrations. Webb Publishing Co., Saint Paul, Minn., 1949. Price $6.50.

This engrossing book, written in the author's customarily pleasing style, and dedicated to one of the most persistent yet unsung foes of the disease, is particularly timely this centennial year in documenting all the significant contributions and developments in tuberculosis in Minnesota during the past 100 years. Every incident and detail of anti-tuberculosis work, from the earliest pioneer days in 1659 through the most recent diagnostic technics of photofluorography and therapeutic procedures such as pneumonectomy are presented in chronological sequence. More than 1,900 persons who have played some role in the conquest are accorded their proper place. Pictorially, also, in addition to the photographs of 245 anti-tuberculosis workers, 120 illustrations and 14 graphs enhance the value of the book. It is a monumental and much-needed documentation of medical history, correlating activities within this state with the advances in tuberculosis throughout the world.

First is traced the initial infection of the Indians from the time of Radisson's first landing, in 1659, through the final stages of the New Ulm massacre in 1862. Then the story is told of immigration to Minnesota of people from all over the country and world, all of whom migrated here for the climatic cure of their tuberculosis. Koch's discovery of the tubercle bacillus only slowly was accepted as proof of contagiousness of the disease. It influenced greatly the diagnosis of tuberculosis as did also the introduction of the clinical thermometer in 1867, discovery of tuberculin in 1890, use of the x-ray after 1895 and the bronchoscope in 1898. Another chapter captivatingly tells of the early influx of doctors and the organization in 1853 of what is now the Minnesota State Medical Association, the creation and early history of the Minnesota Department of Health, the birth and foundling years of medical education culminating in the establishment of the University Medical School. Rounding out the first part are two chapters concerned with early mortality of human tuberculosis, and such early efforts to control the disease as reporting cases, quarantine and sanatoriums.

In Part II are reviewed both the lesser and epochal advances in tuberculosis, especially as related to Minnesota persons, organizations and institutions. Of consuming interest are three chapters discussing pioneers, former Minnesotans, and the state's debt to other people. No detail is too small, no incident too trivial, no worker too obscure to be unmentioned in the historical progress against tuberculosis.

Among the institutions and organizations whose development has conditioned and paralleled advances in tuberculosis have been the University Medical School, the Minnesota Board of Health, sanatoriums and others. Here is the full story of the growth of the University Medical School from one small structure and five non-teaching faculty members in 1893 to its present size, with 541 teaching faculty members this year. No less intriguing and important, as far as tuberculosis is concerned, is the story of veterinary medicine and the eradication of tuberculosis in cattle in Minnesota. Even more intimately identified with eradication of human tuberculosis is the State Board of Health. This, too, is a fascinating epic of progress from conflict with other agencies to development of a special Tuberculosis Control Division and eight branch offices throughout the state. How Minnesota's sanatorium situation developed from not a single bed for tuberculous patients in 1900 to 2,200 beds for tuberculous patients in the State Sanatorium and fourteen county institutions provides here engrossing reading for anyone.

Even with discord between official and lay anti-tuber-

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culosis organizations rife early in this century, there ultimately emerged an effective Minnesota Public Health Association. Since 1924, when the present personnel took the reins, this association has energetically and unremittingly employed every method and device to control the disease. Most effective and helpful were the tuberculin testing, tuberculin distributing and finally, the mass mobile x-ray unit and tuberculin testing campaigns. Unique in Minnesota's contributions have been accreditation of counties and schools in reducing the incidence of tuberculin reactors.

No such volume is complete without an evaluation of accomplishments to date, and an entire chapter is devoted to this topic. Comparisons of the mortality of tuberculosis and the numbers of earlier and present tuberculin reactors in various groups, states and the United States are discussed and graphically presented. In fact, this whole chapter is a remarkable testimonial to the effectiveness of the work of the innumerable persons, groups, agencies, organizations and institutions mentioned in preceding pages. Also of indispensable value is the final chapter of mileposts in tuberculosis eradication. Here are listed in almost outline form all the major events from 1659 to date in the history of Minnesota's fight against tuberculosis.

This book is truly a masterpiece of research and a basic contribution to the historical and tuberculosis literature of the state, if not the nation. Certainly, no one interested in the history of either Minnesota or tuberculosis could afford to neglect this book.

Edwin J. Simons, M.D.

FISHBEIN HAS COLORFUL CAREER

Dr. Morris Fishbein was born in St. Louis on July 22, 1889. He has had a colorful career during his long tenure with the American Medical Association.

He worked his way through the University of Chicago and Rush Medical College, taking lecture notes in shorthand and selling them to classmates. By 1912, when he received his M.D. degree, he was writing editorials for *The Journal of the American Medical Association.* The following year he became assistant editor of *The Journal* and has been with the AMA ever since, becoming editor in 1924.

In addition to his editorial work with the American Medical Association, Dr. Fishbein has written twenty-two books, edited seven others, writes twelve to fifteen popular magazine articles a year, delivers six or eight lectures a month, conducts medical columns in two magazines, writes a daily syndicated health column for more than a score of newspapers, is medical editor of the Encyclopedia Britannica, and a member of one of the technical advisory committees for the Atomic Energy Commission.

Dr. Fishbein likes to recall his early days with the AMA. When he came to the AMA in 1912, it had eighty employes and *The Journal* had 45,000 subscribers Today, the AMA has 860 employes and *The Journal* has a circulation in excess of 136,000. *The Journal* has more circulation than all other weekly medical journals in the world combined. Its runner-up is the *British Medical Journal* with a circulation of 65,000.

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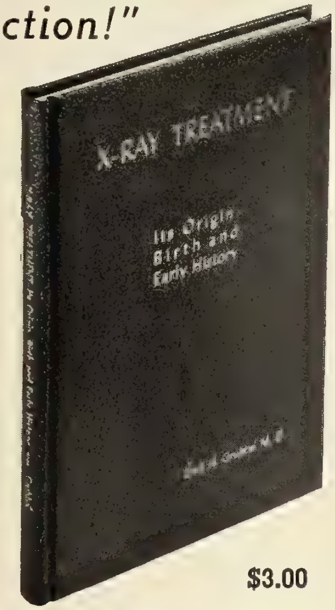

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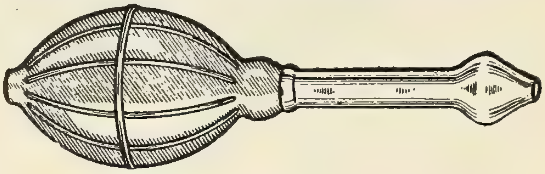

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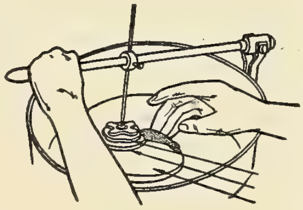

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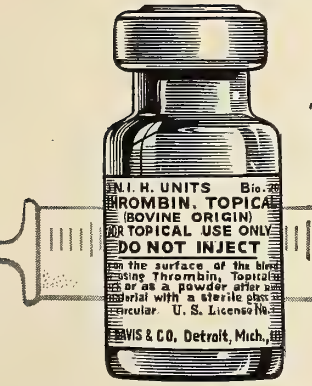

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

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Entered at the Post Office in Saint Paul as second class mail matter. Accepted for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized July 13, 1918.

MINNESOTA MEDICINE

Official Journal of the Minnesota State Medical Association

Published by the Association under the direction of its Editing and Publishing Committee

Office of Minnesota State Medical Association,
493 Lowry Medical Arts Bldg., Saint Paul 2, Minnesota.

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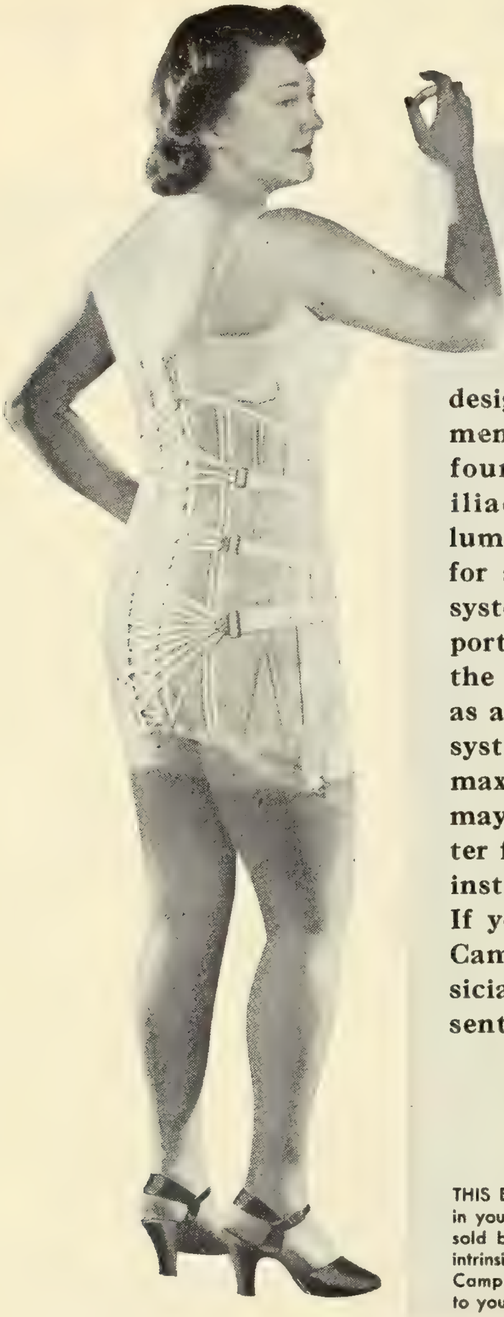

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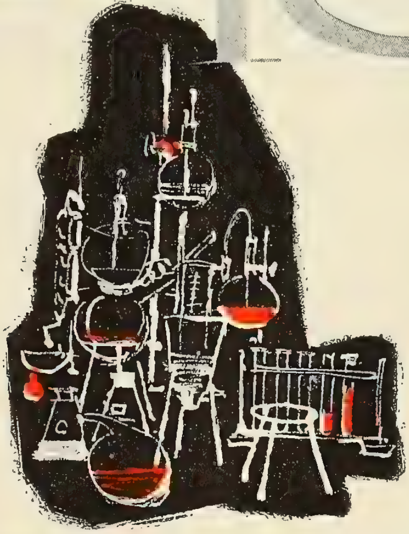

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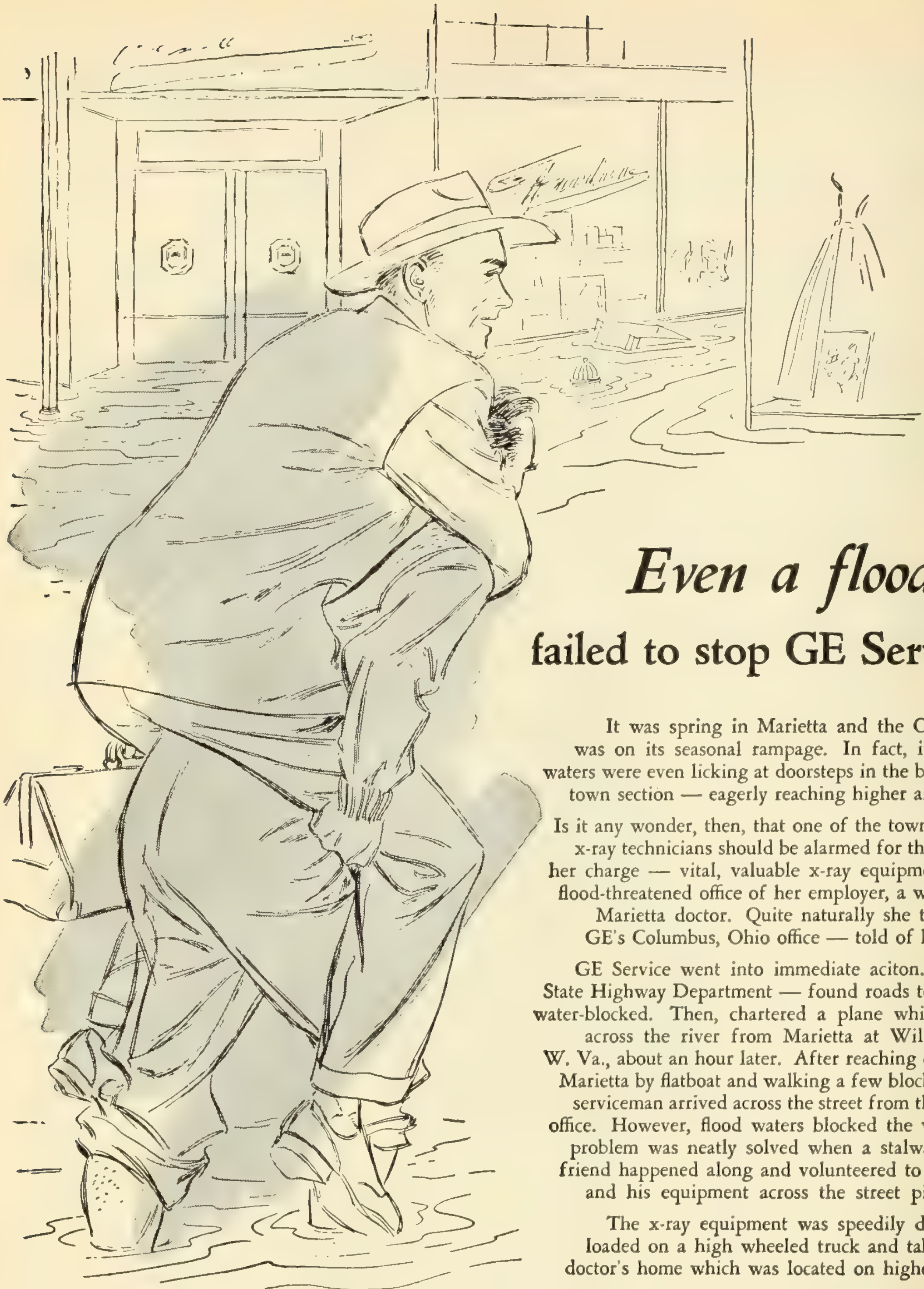

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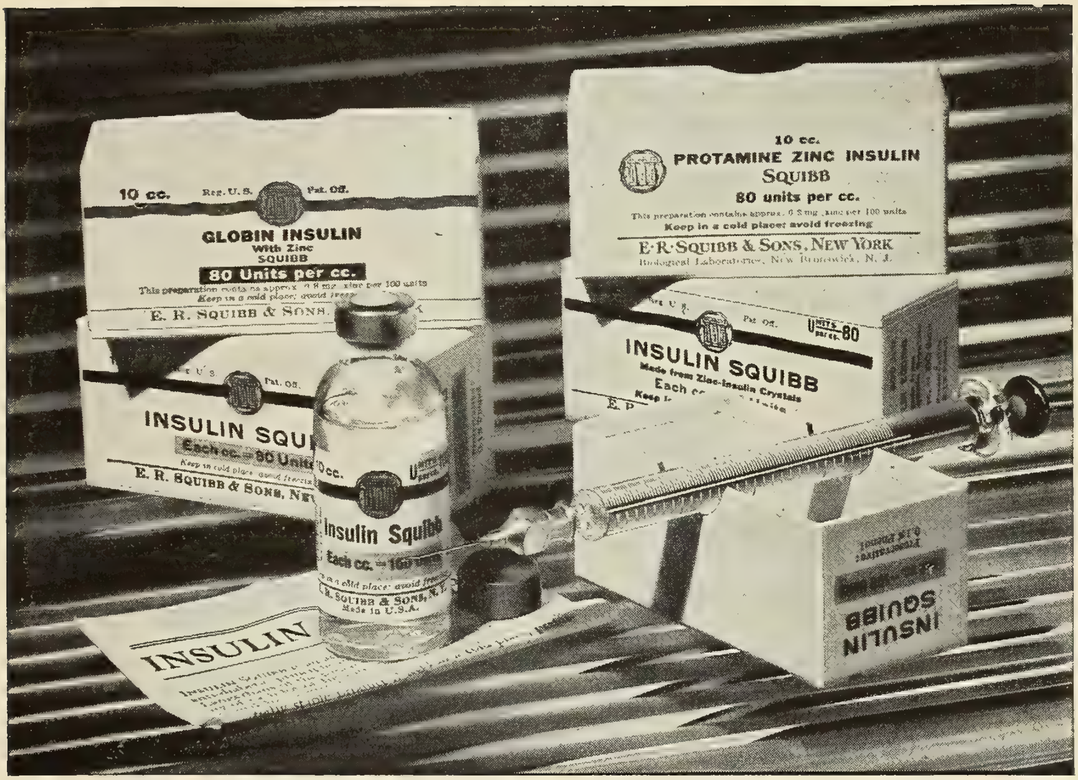
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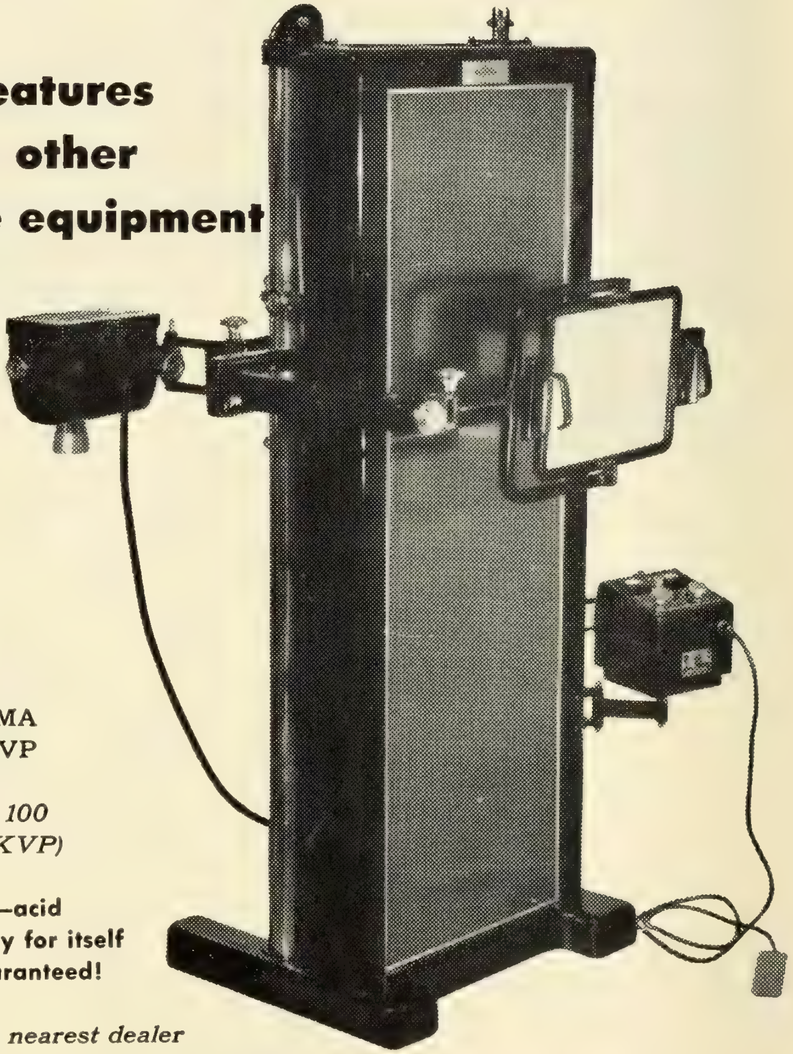

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(1) Lyon, R. A.: Am. J. Obst. & Gynec. *47*: 532, 1944. (2) Groper, M. J., and Biskind, G. R.: J. Clin. Endocrinol. *2*:703, 1942. (3) Wiesbader, H., and Filler, W.: Am. J. Obst. & Gynec. *51*:75, 1946.

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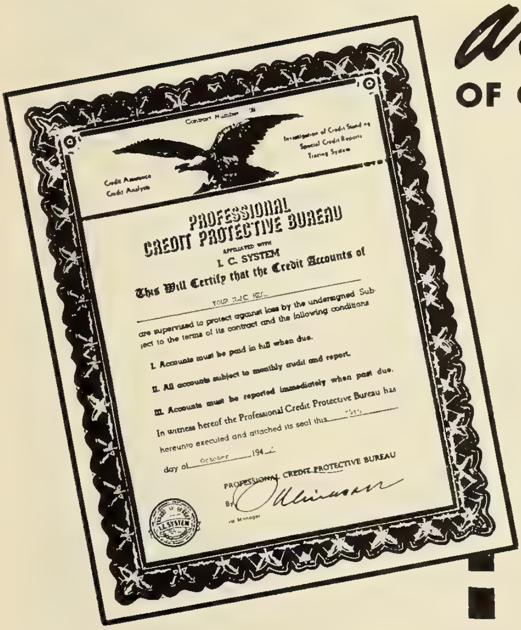

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*Based on average reported values for milk.

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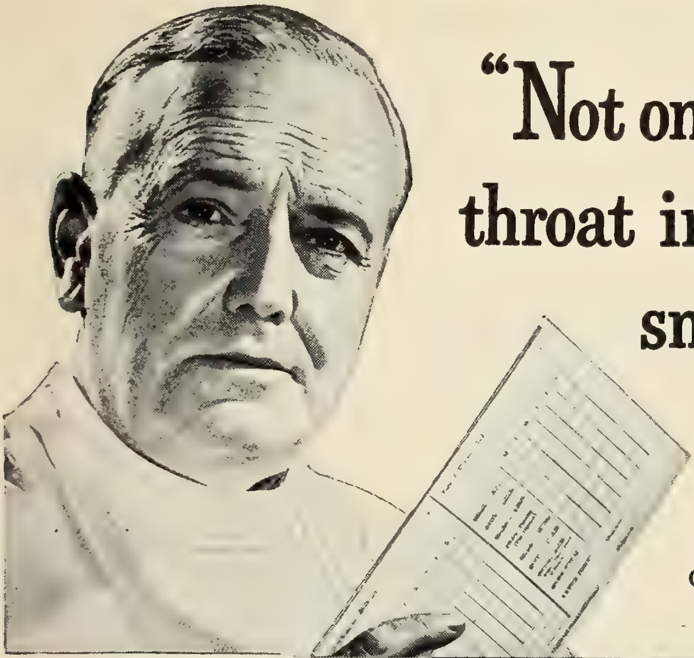

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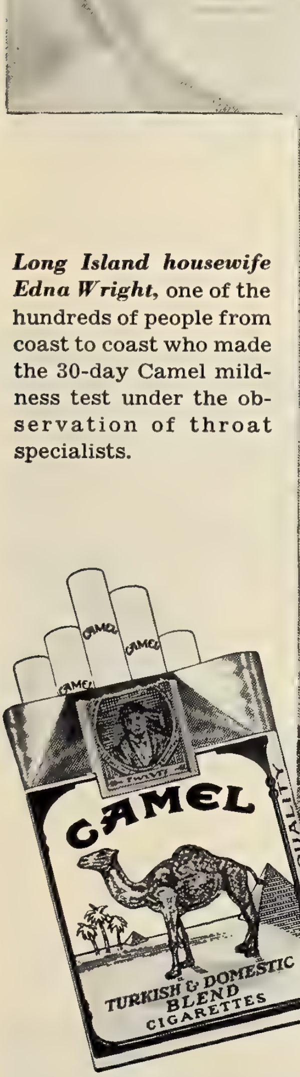
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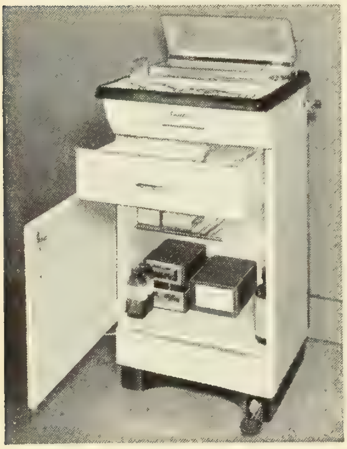
- Boiler rim tapers inside to control condensation. Deeper outside rim seats tightly with top to prevent leakage in cabinet. Lifetime Cast-in-Bronze construction, tin-lined to prevent corrosion.

- Modern, streamlined design gives sterilizer new functional beauty . . . makes it an impressive unit for any office.
- Illuminated plastic name plate serves as pilot light for quick on-or-off indication.
- Full Underwriters' Approval.
- Full Underwriters' Approval. lift is noiseless. Cast aluminum base leaves no rust stains; is toe-recessed in front.



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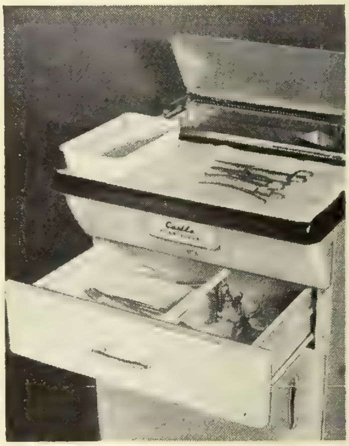

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

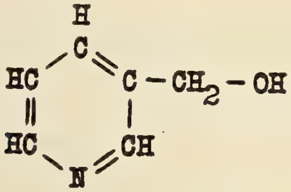
Volume 33 February, 1950 No. 2

THE VASODILATOR—RONIACOL

Report on a Preliminary Clinical Study

S. MARX WHITE, M.D., F.A.C.P.
Minneapolis, Minnesota

RONIACOL,* a vasodilator substance which is converted in the organism to nicotinic acid, is 3-pyridine-methanol or B-pyridyl-carbinol (the alcohol corresponding to nicotinic acid) and has the following structural formula:



During the experimental period the code designation for the compound was NU2121.

Roniacol is a nonvolatile solid with a slight characteristic odor and is freely soluble in water and in alcohol. Aqueous solutions are practically neutral and may be used intravenously and intramuscularly if given with care.

For mice the LD_{50} (that dose which kills 50 per cent of the animals) is 1.4 gm./kg. intravenously, 2.0 gm./kg. subcutaneously and 3.0 gm./kg. orally. No untoward symptoms were observed in dogs from oral administration of 180 mg./kg. Diets containing twelve to twenty-four times the clinical dosage used in our study in man were fed to rats for three months without causing ill effects on blood formation, and produced no significant effect on growth rate compared with untreated animals. The daily administration to dogs of 250 to 500 mg. (the approximate amount given daily to man) for three months had no adverse effect on weight, blood formation, blood glucose or nonprotein nitrogen. The effects on the circulation in animals will not be considered here except to state that, in general, Roniacol has a powerful vasodilator effect on both coronary and peripheral circulation.

Clinical Considerations

There are several conditions in which somewhat prolonged vasodilation should be of benefit, particularly in treatment but also in diagnosis. These include conditions in which cerebral, coronary, renal, or peripheral vascular spasms are involved, such as Raynaud's disease, endarteritis, Buerger's disease, the syndrome of intermittent claudication, varicose ulcers of the legs, decubital ulcers, acrocyanosis, chilblains, the angina pectoris syndrome, migraine associated with vascular spasms, Ménière's syndrome, and ophthalmic conditions associated with deficient blood supply. Collateral circulation is of paramount importance when the vascular lumen is narrowed. Spasm of any measurable anastomoses further diminishes the nutrient supply beyond the point of arterial narrowing. On the contrary, dilatation may more or less compensate for the nutrient lack. To be effective in aiding nutrition in an area with deficient vascular supply, brief and evanescent dilatation in collateral vessels requires frequent repetition of the dilator effect. A prolonged dilator effect is to be sought and should aid in establishing permanent dilatation of the vessels involved.

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*Roniacol is a vasodilator substance converted in the organism to nicotinic acid. The drug was kindly supplied by the manufacturer, Hoffmann La Roche, Inc., Roche Park, Nutley, New Jersey, for clinical trial. The statements as to chemistry, pharmacology and effect on circulation in animals are those of the manufacturer.

Evidence supports the view that when vasospasm occurs frequently, and especially when prolonged, the tendency is for constriction to occur more and more readily and to inhibit the development of permanent dilatation.

Also, when collateral circulation is evoked, dilatation which commonly occurs in the collateral vessels, if given sufficient time, may become permanent. The degree to which this develops varies greatly in different organs, states, vascular disorders and particularly in different individuals. More time and further study is needed to determine how much acute change and how much prolonged and permanent change can be produced by medication, and by surgical means such as sympathectomy in sites where this procedure is practicable.

While the rate of development of effective and permanent collateral circulation in arteries undoubtedly differs from that in veins, all available evidence reveals that it is slow and that the maximum dilatation is only gradually attained. There is at the present time no certain method of visualizing the coronary vessels in man during life, but analogy with situations in which either venous or arterial collateral circulation may be visualized should aid in understanding the processes involved.

Much experience has been gained in former years, before the use of anticoagulants became so widespread, in the rate of development of collateral circulation between the veins of the lower abdomen and the thigh in cases of obstruction in the iliac and femoral veins. Study of the veins seen at the surface between thigh and abdominal walls has shown that the full degree of dilatation of the anastomosing veins requires many months, in some instances a year or more.

Examples illustrating the time required for full development of peripheral arterial anastomoses are not so readily found, coarctation of the aorta perhaps furnishing as good an illustration as any, although the factor of body growth as well as other factors is involved. It is well known that the tortuous anastomotic arteries pulsating and palpable over the upper back, shoulders, and base of the neck, as well as the crenellation of the lower rib margins as seen by x-ray, take years to become evident.

The present preliminary report on Roniacol is concerned principally with two conditions in which vasospasm and vasodilation in a collateral circulation are important and often vital: acute transitory coronary insufficiency causing the angina pectoris syndrome, and peripheral vascular lesions including indolent and decubital ulcers in arteriosclerotic patients.

Roniacol is furnished in 50 mg. tablets, scored so that a half tablet may be used if desired. Given by mouth the amount has varied from 50 mg. in single doses or as often as four times daily, to 800 mg. daily in divided doses. The most common dosage was 100 mg. three or four times a day. A great advantage of the drug is the absence of irritation of the gastrointestinal tract and of adverse effect on the blood or blood-making organs.

The acute or immediate effect differs greatly with individuals and with the state of the stomach, whether empty or containing material that would dilute or delay absorption. The typical reaction when an effective dose, usually 100 mg., is taken on any empty stomach, begins in six to twelve to fifteen minutes, with a sensation on the face and forehead spreading to the ears, neck and upper chest (especially the ventral surface), often later on the hands and forearms, and occasionally in the feet and legs and even the torso, though usually in lesser degree. The sensation is variously described as "warmth," "prickling," "tingling," and occasionally as "burning," felt most strongly in the regions first involved. Following the paresthesia as a rule, but occasionally preceding or coincident, a visible flush appears, which in a few subjects becomes very deep. The pattern of the flush appearance is similar to that of the paresthesia though not identical in all cases. In a few individuals the flush involves the whole body, extremities and torso, and is usually mottled in patches palm-size or larger. The subjective and objective phenomena may last a half hour or longer, the subjective usually of shorter duration than the visible flush. Pulse rate, respiratory rate, and blood pressure are slightly and briefly affected. An increase of 10 mm. Hg in blood pressure has been observed once. The usual change is insignificant and is followed by a return to normal or only slightly below. In one instance of peripheral vascular disease involving the legs, pulsation was felt in a dorsalis pedis artery previously inert.

When the drug is taken with food, e.g., during a meal, the foregoing phenomena are usually lessened and in some are not manifest. In a few they have occurred in almost the full degree.

The drug has been used for patients with angina pectoris to determine whether tolerance to exercise, activity or excitement could be increased. In the angina pectoris syndrome the criterion of intolerance to these stresses is pain, characteristic in site and distribution for each individual.

From the postmortem appearance of diseased coronary vessels, change in the lumen of a narrowed coronary artery sufficient to produce clinically discernible benefit is improbable. Relief within five minutes or so of anginal pain which has caused the victim to cease activity must come through improvement of the collateral circulation by relaxation of spasm or through dilatation of the collaterals to permit nutrient blood flow to the area rendered deficient during the period of pain. In addition, time should allow a blood supply relatively inadequate only during the activity period to become adequate when the activity has ceased. Not having actually been seen in the anginal paroxysm in man, this sequence of events and the consequences can only be surmised, but the probable occurrence rests on sound clinical and pathological observations.

The quick relief by rapidly acting vasodilators strongly supports the belief that vasospasm is in part responsible for anginal pain. The action of the drug now under study is not sufficiently rapid to relieve established pain but has been used in an attempt to accomplish one or both of two objectives: (1) by a more or less prolonged vasodilator effect to increase the range of activity in which a patient may engage before pain develops, and (2) by such prolonged action to prevent or lessen vasospasm and encourage more permanent vasodilation of the collateral field.

Clinically, no brilliant, immediate or dramatic results are to be expected. The program of regime and drug therapy is a long one, requiring painstaking instruction on the part of the physician and continuous co-operation on the part of the patient. In the many years of dealing with the anginal syndrome this observer has seen from time to time patients in whom such a program conducted with care has been followed by gradually increasing tolerance of exercise. It should be emphasized that the one most important regulation should be to learn the amount or extent of exercise producing pain, to learn to stop short of this and to remain quiet the necessary moments before proceeding. Even the "aura" or any sensation known to precede the actual pain should be avoided. Glyceryl trinitrite is to be used only when the rule is forgotten, not with the idea that any damaging effect of the painful incident can be obviated or prevented.

The control of stimuli of an emotional character is less readily accomplished, but here also the physician has a responsibility, that of explanation and reassurance, and of advice concerning the control of the environment. Co-operation is not as readily secured as in the exercise field. I have not been impressed as a rule by the results when technical psychiatric help has been sought.

The routine use of tablets so widely touted by some of the drug houses today, combining a vasodilator drug with phenobarbital is a pernicious practice. It is a symbol of defeat in a situation requiring instead careful management with adaptation to individual need and regimentation most of all.

When improvement has occurred in the past, it has taken as a rule many months before a measurable increase in range could be noted. Not infrequently a year or more elapses before so great a change occurs that patient and physician both are confident that definite results are at hand. This slow progress of what is believed to be principally improvement in collateral circulation in the coronary vessels compares quite closely with the development of collateral circulation in surface vessels cited earlier.

The natural history of coronary disease with angina pectoris varies so widely in individuals that statistical analysis of results of treatment is not feasible. Fifty years of study of the disease by the writer should germinate impressions of value.

Lacking better agents, I have prescribed theocin, theobromine and theophyllin ethylene diamine preparations, and at times have believed one or another has been beneficial, but have always considered that persistent regulation of activity was of greatest importance in preventing vasospasm in the collaterals, thus allowing the vasodilator tendencies to gain the ascendency.

When it is remembered that while improvement in one area may be taking place, an atheromatous patch in another artery may be blocking a new channel in the coronary jungle, it is no wonder that in this field "art is long, the crisis is fleeting, experiment is risky and the decision difficult."

Patients in four groups have been studied: (1) the angina pectoris syndrome, (2) peripheral vascular disease, (3) indolent decubitus ulcers in arteriosclerotic patients, (4) Raynaud's disease.

The Angina Pectoris Syndrome.—Cases 1 to 9, inclusive. In Cases 1 to 6, studied over a period of six to twelve months, there has been noted an increase in range of activity without producing the pain syndrome which is greater to an appreciable degree than the author has been able to secure by other treatment. The increase in range and the greater freedom from pain episodes has begun earlier and has been remarkable in each of the six cases.

It is improbable that the point or points of atherosclerotic stenosis in coronary arteries responsible for the myocardial ischemia presumed to cause the pain have been affected. It is the author's opinion that a positive effective and prolonged vasodilatation is secured and that this contributes to an improved collateral circulation in the myocardial areas involved. It will take more time and observation on many more patients by many students of the problem before an adequate consensus of opinion develops. Other patients are under observation, and similar results seem to be developing, but the time is too short for appraisal. Report will be made in a subsequent contribution.

In three of the patients, Cases 7, 8, and 9, results were unsatisfactory and the drug was discontinued, but in these also no actual toxic effects were noted. Abdominal discomfort, extreme discomfort from the flushing and paresthesia, or lack of relief were responsible.

Peripheral Vascular Disease.—Cases 10, 11, and 12. In all three the improvement in peripheral circulation was evident early, and in the first two of these this demonstration has aided in the decision favoring sympathectomy. In Case 10 the hands were involved; in Case 11, the left foot. In Case 12 the improvement in circulation in the legs has been marked and, considering his age and mental state, has been considered satisfactory without sympathectomy.

Indolent Decubitus Ulcers in Arteriosclerotic Patients.—Cases 13 and 14. Two longstanding decubitus ulcers on the heels had failed to heal under vigorous management. Roniacol clearly aided peripheral circulation so that healing progressed satisfactory and the ulcerated areas closed.

Raynaud's Disease.—One case only, in a woman of fifty years (Case 15). There has been a definite and beneficial effect, but the case is too recent to admit conclusion as to the ultimate outcome. The result will encourage further trial in this field.

Conclusion

A new vasodilator substance, Roniacol, has been given clinical trial. In six cases of the angina pectoris syndrome, due to coronary sclerosis, the improvement in range of activity permitted before the typical pain developed has been greater than the writer has been able to secure by other medication in the past. This suggests that an effective degree of vasodilatation has been produced in the collateral vessels in the coronary circulation. In three cases the drug was discontinued because of abdominal discomfort, discomfort from the flushing and paresthesia, and failure of relief, respectively. In peripheral vascular disease and in indolent decubital ulcers in arteriosclerotic patients, improvement in the circulation was readily demonstrated, and in two cases in the first category laid the bases for sympathectomy. A patient with Raynaud's disease has, in a short time, shown much benefit. Results so far secured justify further extended trial of Roniacol in coronary disease with the angina pectoris syndrome and in all forms of peripheral vascular disease where an effective vasodilator with a somewhat prolonged action is called for.

Case Histories*

Case 1.—H. A. N., a business executive, aged sixty-three, was admitted to the hospital March 22, 1947.

The patient gives a history of malarial fever at twelve and in 1917 had a bout of fever which was called typhoid. If he walks 600 feet, he gets pain across the chest. This same type of pain was first noted eight years ago while fishing and compelled to row his boat against the wind with a storm coming up. That night he wakened with severe pain over the sternum which lasted about fifteen minutes. This occurred the next night and lasted only a few minutes. It was relieved by aspirin. Since then he has had an occasional pain on effort or walking, especially in the cold weather or after heavy meals or in walking six or seven blocks. This has occurred more frequently the past year and now almost every morning. It occasionally occurs at night for a brief period. There is no dyspnea. The pain goes into the upper arms, right and left, if severe.

The patient was seen again April 19, 1947, and he reported pain on walking three blocks and occasionally at night. The pain is relieved by nitroglycerin. Patient reported on May 17, 1947, that on the night of May 10 he had had pain twice lasting ten or fifteen minutes. He thinks he may have had too much to eat. Had much eructation of gas. Nitroglycerin gave relief.

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*Case histories have been much abbreviated to permit publication.

Examination: Height 5 feet 8 inches, weight 158 pounds, pulse 75 per minute, blood pressure 152 systolic and 82 diastolic. The peripheral vessels showed arteriosclerosis 1+. A cholecystogram on March 29, 1947, showed the gall bladder filled and emptied normally, and concentrated well. On March 31, 1948, gastrointestinal barium motor studies showed the stomach filled and emptied well, no defects, duodenum partially posterior, normal, no tenderness. At six hours the meal was in the hepatic flexure. At twenty-four hours, during which a normal stool had occurred, there was no residue in the colon. Rectal examination of the prostate showed the prostate 1+, firm and regular. There were 15 c.c. of residual urine. Opinion was early prostatic hypertrophy The urine had a pH of 6.0, specific gravity of 1.020, no albumin, no sugar, no casts, no increase in leukocytes. The hemoglobin of the blood was 82 per cent, white blood count 8,200. The sedimentation rate of the red blood cells was 6 mm. in one hour. Wassermann reaction of the blood was negative. An electrocardiogram showed normal complexes with auricular and ventricular premature beats.

A diagnosis of coronary arteriosclerosis with angina pectoris syndrome was made. He was instructed to avoid activity which brought on pain and to use nitroglycerin 1/100 gr. under the tongue if pain developed, and was given theobromine sodium acetate 7½ grain enteric-coated tablets to be taken three times a day. Quinidine sulphate in 3 grain doses twice daily, given with morning and evening meal, controlled the extrasystoles. He did not experience satisfactory improvement of the anginal episodes. Patient was apparently unable to learn the necessity for stopping short of effort causing pain. His physical condition remained about as reported on March 22, 1947.

On November 20, 1948, he was given Roniacol and instructed to take one 100 mg. tablet before meals as a preventive of pain. On December 4, 1948, patient reported that on taking the drug on an empty stomach he has a feeling of flushing of the face, chest and ears lasting about five minutes. If the drug is taken with food this does not occur. He was more carefully instructed to try both methods, i.e., taking before and after meals, and report which method relieved this pain. He reported on December 4, 1948, that the first week after beginning the drug he had no pain but did the things he formerly did and without pain. However, after breakfast on one day after walking four or five blocks he had some discomfort but it was not pain as he had before.

On December 24, 1948, after continuing the Roniacol in 100 mg. doses three times daily, he reported if he takes it on an empty stomach he has about five minutes feeling of warmth of the face, forehead and ears. He feels that the incidence of pain is definitely lessened. The first week on Roniacol following November 20 was the best week he had had in four or five years. If he takes the remedy with the meals, he does not experience the warmth. On the morning of December 18 he took the remedy at 8:00 a.m., had breakfast five minutes later, feeling of flush continued, drove downtown without a suggestion of pain. He reports the impression that there has been a distinct increase in range without pain.

This man now sixty-three years of age continues his active business career. On frequent occasions he has mild anginal pain if he walks several blocks immediately after a meal, as breakfast or lunch, but in general is able to walk many blocks without pain, and this relative freedom has been accomplished in a much shorter time than has been the writer's experience in other cases.

Case 2.—P. T. B., a single male, aged sixty-four, an executive of a wholesale pharmacy house, was admitted to the hospital November 29, 1948. His father had died at the age of fifty-four of arteriosclerosis. His mother had died of pulmonary tuberculosis in 1938 at the age of seventy-nine. The patient lived in the same apartment. He used no alcohol nor tobacco. He had scarlet fever at the age of sixteen. In 1929 he had been told his blood pressure was 140/84, and first knowledge of its elevation was in February, 1943, when he was told it was 180 systolic, 110 diastolic.

He complained of precordial distress on walking two blocks, this the past few weeks and occurring after meals only. No dyspnea was noted. Distress ceases promptly on standing still.

Examination: Height 5 feet 4 inches, weight 153 pounds, temperature 98.6° F., blood pressure 154 systolic, 100 diastolic, heart rate 90, regular. Carotid sinus pressure right causes disappearance of heart tones for space of three or four beats. Heart tones faint, normal, no murmurs. General physical examination negative. Reflexes normal. Mantoux skin test positive. A six foot film of the chest shows heart well within normal limits as to size and contour. No parenchymatous lesions are present in the lungs. Films taken of the dorsal spine show no pathologic changes in spine. The urine is normal, hemoglobin 14.6 grams, red blood count 4,300,000, white blood count 7,600, with a normal differential count. The sedimentation rate of the red blood cells is 7 mm. in one hour. Blood cholesterol 188 mg. per cent. Electrocardiogram on December 1, 1948, shows PR interval .20 seconds, all T waves small, deep Q_3. Repeated April 6, 1949, essentially unchanged.

Diagnosis: Angina pectoris syndrome, probable coronary sclerosis. Instructed to avoid activity causing distress.

Treatment: Aminophyllin, enteric-coated tablets, t.i.d., p.c.; weight reduction.

December 23, 1948: Weight 146½ pounds, blood pressure 126 systolic, 82 diastolic. Reports that he can now walk three or four blocks without pain. Stooping over causes pain.

January 25, 1949: Weight 146½ pounds, blood pressure 135 systolic, 86 diastolic. Reports he can walk now five or six blocks without pain.

April 6, 1949: Has continued aminophyllin, 3 grains, enteric, t.i.d., p.c., but recently precordial pain develops on walking two blocks or less. Has continued work at desk every day. Blood pressure 102 systolic, 60 diastolic, heart rate 96 regular. Electrogram essentially unchanged from December, 1948. To take one 100 mg. tablet of Roniacol t.id. before meals.

He was observed weekly through April and May but very little change was noted. May 20, Roniacol was increased to 150 mg. t.i.d.

June 10, 1949: Reports that over-all picture is much improved. Can stoop over without causing pain. Feeling of oppression but no pain develops on walking three or four blocks but disappears in less than five minutes.

June 24, 1949: "I am much better than I was six months ago, can stoop without pain. Today walked seven blocks at a moderate gait wthout pain or having to stop; can now do calisthenic exercises which I could not do previously because of precordial distress. 150 mg. Roniacol with early part of meal usually causes flush at end of meal, lasting an hour and a half or longer."

July 22, 1949: Reports continued improvement to tolerance of exercise without pain. At 11:27 a.m. he was given 150 mg. Roniacol and the reaction observed. Within seven miutes he reported a slight burning sensation around "face and ear drums." Slight flush of face and chin was noted. In ten minutes a flush could be seen over the upper sternal region. In twenty minutes there was a burning sensation of the fingertips. In twenty-five minutes the flush had increased over the face, neck, chest to costal arch, shoulders to spines of scapulae, and over the hands. He complained of being slightly dizzy on getting off the examining table. During the period above, successive blood pressure readings of 132/85, 130/84, 128/82, 130/84 were recorded and the pulse rate remained between 72 and 75 per minute.

August 26, 1949: Weight 143 pounds. Directed to increase dosage to 200 mg. with meals and at hour of sleep, i.e., 800 mg. daily during period of anticipated vacation.

October 14, 1949: Can regularly walk four or five blocks even after meals without pain; often several more at a fair gait. Insists there is great improvement over condition and range of activity before beginning present régime.

Case 3.—H. E. G., a man, aged sixty-two, an industrial engineer, was admitted to the hospital July 1, 1944.

Present complaint: For the past two or three weeks he has wakened occasionally at 2:00 or 3:00 a.m. with a feeling of distress under the sternum. He is not aware that he had been dreaming. He notes also some dyspnea on any unusual exertion such as climbing a hill at golf.

Examination: Height 5 feet 6½ inches, weight 181 pounds, blood pressure 142 systolic, 88 diastolic, heart rate 72 regular, pulse of normal amplitude and character. A systolic murmur, 3+ loud and rough, was heard loudest over the aortic area and also to the right of the manubrium sterni and in both carotids, loudest in the left. The murmur could be traced downward to the left over the precordia and apex, fairly loud and rough, and was transmitted to the anterior axillary line. A six foot film of chest showed moderate ectasia and tortuosity of the aorta and a prominent aortic knob. The cardiac silhouette was suggestive of moderate left ventricular enlargement with a total cardiac diameter of 15.2 cm. in a chest diameter of 30.7 cm. There was no evidence of calcium deposit in the region of the aortic valve on fluoroscopic examination. Cholecystograms showed a fair concentration of the dye, normal limits in size and shape and position and good emptying after a fatty meal. There were distinctive shadows of at least four calculi measuring from 12 to 15 mm. in diameter. Barium gastrointestinal study showed no abnormalities throughout the tract, studied with special attention to esophagus and cardia. A gastric expression, free hydrochloric acid was 10, total 34 units. Blood showed hemoglobin 18.2 grams, erythyrocytes 5,500,000, white blood count 7,000 in normal percentages. Urine had a specific gravity of 1.022, trace albumin, 1 to 3 red blood cells per high power fields, no casts. Ophthalmoscopic examination revealed no vascular or other abnormalities. The blood Wassermann was negative. The prostate was normal. Electrocardiogram showed moderate left axis deviation. Blood cholesterol was 359 mgs. per cent.

Diagnosis: Cholelithiasis, aortic sclerosis.

With dietary regimen and bile salt administration, distress ceased and conditions remained stationary until the fall of 1948.

On September 20, 1948, he reported mild precordial pain or "distress" if he walks a block within an hour after a meal. Then if he stops and can belch gas, he is relieved. Later he can walk without the distress which he describes as a sense of pressure behind the sternum. The previous night he had a bout of severe epigastric pain lasting one-half hour, relieved by "bisodol followed by eructation of large quantities of gas" and this morning he has considerable discomfort in the epigastrium. Physical signs over the heart were essentially unchanged from 1944; weight 183 pounds, blood pressure 136 systolic, 80 diastolic, heart rate 66 regular. Electrocardiographic tracings as compared with tracings taken in 1944 showed flat T, and inverted T3 and T4 (chest electrode at apex).

A diagnosis of coronary sclerosis and angina pectoris syndrome is added. At his request, alphatocopherol 50 mg. t.i.d. was tried for a month without effect.

October 21, 1948: Conditions unchanged and again at his request daily dosage alphatocopherol was doubled to 300 mg. Reviewed by Dr. George B. Eusterman and Dr. H. L. Smith at the Mayo Clinic, the diagnoses given above were confirmed. They found the plasma cholesterol values 217 and 230 mg. per cent.

January 7, 1949: Alphatocopherol discontinued. Roniacol, a 100 mg. tablet t.i.d., was begun.

January 14, 1949: Reports the usual reaction if drug is taken on an empty stomach, i.e., flushing of face and head with sensation of warmth which comes on in ten to fifteen minutes and lasts twenty to thirty minutes. Has no pain or pressure sensation but has been more careful to avoid exercise causing pain. Directed to take 400 mg. daily.

March 14, 1949: After return from motor trip to West Coast. Flushing of face and sense of warmth after dosage as before. Has seldom had sense of pressure or pain on effort. His range is very definitely increased and the lessening and frequent absence of pain is especially noted.

June 7, 1949: Weight 176 pounds, blood pressure 155 systolic, 90 diastolic. Heart rate 48 regular. Has pain only if he walks after meals a full block rapidly. Can play golf without pain and dyspnea if he does not eat beforehand.

October 6, 1949: Weight 176 pounds. Blood pressure 148/82, heart rate 54 regular. Systolic murmur over aortic area, over precordium and at apex, transmitted to axilla as previously reported. Has had his usual dose of Roniacol with breakfast at 7:45, and was able to walk without pain or dyspnea. He was given a test dose of 100 mg. at 11:45 for observation. The usual paresthesia began in face, ears, scalp and neck in about seven minutes, and in ten minutes redness was visible and promptly became marked. Blood pressure 146/80, heart rate 48 regular. In eighteen to twenty minutes redness began over both hands and rapidly spread to forearms—no paresthesia here. Paresthesia lasted one-half hour, redness about forty minutes.

Directed to increase dose of Roniacol to 150 and 200 mg. q.i.d.—although he reports he can play golf without pain and has pain only when he walks rapidly after breakfast.

November 11, 1949: Marked improvement in range of activity without subsequent pain is noted. Can still bring on pain by walking rapidly immediately after a meal, but has learned to avoid this. Has played his usual game of golf without discomfort. Much better than before Roniacol was begun.

Case 4.—L. G. S., an automobile mechanic, aged forty-nine, was admitted to the hospital December 23, 1947.

Past history: "Pleuropneumonia" at age of two, left, surgical drainage, frequent mild head colds. Kidney stone passed in 1943. Appendectomy in 1904. Cigarettes, one-half package daily; no alcohol. Past three months severe retrosternal pain with sensation of pressure or squeezing of chest on effort, often while working as auto-mechanic and occasionally at night, waking him from sleep. Pain goes into both arms, may last five to ten minutes if he ceases effort or takes nitroglycerin tablet under tongue, but the remedy causes headache. On one occasion two months ago the pain lasted a half day. In November on deer hunting he was without discomfort while walking through the woods but had a severe attack of retrosternal pain on arrival in camp. A severe attack is almost unbearable and feels as if his chest would burst. Has had occasional mild attack while sitting in a chair. Much worried over job and prospect of eviction from apartment.

Examination: 5 feet 4 inches, weight 156 pounds, blood pressure 110 systolic, 78 diastolic, traumatic cataract right, ocular reflexes on left normal, knee jerks normal, station normal. Pyorrhea present. Moderately large tonsils with low grade chronic infection. Scars of left thoracotomy and appendectomy. Apprehensive and worried.

Hemoglobin 15.5 grams, white blood count 8,100 in normal percentages, sedimentation rate of red blood cells 6 mm. in one hour. Urine specific gravity 1,020; no abnormalities. Electrocardiogram, normal rate and rhythm, auricular and ventricular complexes normal except for deep Q3 (6 mm.). A six foot x-ray film of the chest shows no pulmonary or mediastinal (heart and great vessels) abnormality. Mantoux skin test 1:1000 negative, cholecystogram negative, barium gastrointestinal study with especial attention to cardia revealed no abnormalities. X-ray films gave evidence of hypertrophic arthritis involving the fifth and sixth cervical vertebrae with spina bifida occulta of the seventh cervical and first dorsal spines.

Diagnosis: Coronary sclerosis, angina pectoris syndrome, pyorrhea alveolaris, arthritis of cervical spine, spina bifida occulta seventh cervical and first dorsal vertebrae.

He was cautioned against activities producing pain, and given aminophyllin, 3 grains in enteric-coated tablets q.i.d. with glyceryl trinitrite p.r.n. He continued his work and experienced little or no change in the amount of exercise possible without pain. An intercurrent incident of pain in the right shoulder and arm led to a spinal fluid study February 14, 1948. This showed normal values in cell count, protein, sugar, and colloidal gold curve and negative Wassermann. In March, 1948, he was much concerned about living quarters. On March 15 toward morning he was awakened by severe retrosternal pain. He took nitroglycerin eight times within two or three hours, each time with brief relief and then a recurrence of pain. Next day he got an extension of occupancy of living quarters and then fainted in court. He was studied for ten days after this; no fever or leuckocytosis and no change in electrocardiograms could be demonstrated. Course continued as before until March 24, 1949, when he wakened at 5:00 a.m. with a severe paroxysmal retrosternal pain which persisted. He was hospitalized until April 30, 1949, the diagnosis by Dr. Olga S. Hansen being acute coronary occlusion with myocardial infarction. The electrocardiograms from March 27 through April showed acutely progressive changes of posterior type infarction. Following discharge from the hospital he began to experience pain on effort as before.

He began Roniacol May 14, 1949. He was observed by the writer after administration of 100 mg. at 4:15 p.m. He reported a sensation of prickling and warmth of face and ears beginning in nine minutes, and this was promptly followed by a visible flush which with the sensation spread over face, scalp, ears, neck, upper chest and to arms and hands within fifteen minutes after the drug was taken. During this period and up to forty-five minutes after administration the blood pressure remained within a range of 120/80 to 124/82 and the pulse rate from 68 to 72.

June 21, 1949: Electrocardiogram showed return toward normal type, but Q3 persisted.

Continuing a total of 400 mg. Roniacol daily, he went to work July 9, 1949, five days a week. Has had mild precordial pain about five times a day.

July 23, 1949: The dosage was increased to 150 mg. q.i.d. a total of 600 mg. daily. Since this increase he has had little or no pain, working forty hours a week with the exception of August 2, 1949, when he had a brief paroxysm on being served with eviction notice.

He has had to learn to work at a moderate pace and develop as much serenity and equanimity as possible. He can bring on slight brief distress if he works hard and fast or hammers hard and vigorously over many minutes, but to him his relief is remarkable.

August 6, 1949: Blood pressure 138/85, heart rate 70 regular. He is taking 600 mg. Roniacol in four doses and working every day with no pain.

August 20, 1949: Blood pressure 142/64, heart rate 75 regular, weight 165 pounds. Has been working regularly since July 11, with no pain except rarely if he works very fast and hard. He can climb stairs and walk indefinitely at moderate pace without pain.

October 10, 1949: He has continued 600 mg. Roniacol daily and remains at work with only very rare paroxyms of pain on distinct overdoing. Both he and his wife feel that his relief has been remarkable.

November 14, 1949: Has been without Roniacol since November 6; worked all week but repeatedly had pain, whereas since early August has been relatively free, developing pain only on severe exertion, working fast, et cetera. Both patient and wife report extreme difference with relapse to former frequency of pain when deprived of the drug.

November 19, 1949: Frequency and severity of anginal pain reduced greatly after resuming November 14, 1949, with 600 mg. of the drug daily. He has worked several days without pain.

Case 5.—J. F. M., a widow, aged seventy, was first seen March 12, 1947.

In 1943, while in California she suffered a severe attack called "flu." Since then she has had severe precordial pain on walking, especially against a wind. The pain extends into the left shoulder, arm, and forearm but is relieved by standing still. For the past two or three weeks her ankles have swelled and she has been dyspneic on exertion.

Examination: Positive Mantoux skin test 1:1000. Chest x-ray showed old apparently healed lesions at the right apex with scattered calcification in the area. The heart is slightly above normal in size with left ventricular enlargement and a slight calcification in the arch of the aorta. Sputum and fasting stomach contents did not reveal acid-fast organisms. Height 5 feet 3 inches, weight 114 pounds, heart rate 96 regular. Peripheral arteriosclerosis 1+. Moist râles in both lung bases on inspiration; post-tussal râles at the right apex. Moderate pitting on pressure of both ankles and feet. Hemoglobin 80 per cent (13.8 grams), white blood count 8,700. Sedimentation rate 12 mm. in one hour. Basal metabolic rate plus 8 per cent. Electrocradiogram showed a rate of 110, QRS .12 seconds, T_1—1mm., T_2—2mm., T_3—1mm.

Diagnosis: Arteriosclerosis, corornary sclerosis, healed pulmonary tuberculosis of the right apex, angina pectoris syndrome.

An acute respiratory infection in July subsided promptly. Blood pressure readings varied from 126 systolic, 82 diastolic on November 14, 1947, to 134 systolic, 84 diastolic on March 10, 1948. Treatment had been principally instruction in avoidance of effort producing pain with use of theobromine sodium acetate and 1/100 grain tablets nitroglycerin p.r.n. There had been no marked reduction of pain attacks on effort, which had occurred three or four or more times a day.

Seen December 21, 1948: On evening of December 18, 1948, she experienced an acute precordial pain after a hot bath and while in bed awake, reflected into the left arm. Dyspnea lasted one hour, after which she fell asleep and during sleep daughter noted periodic breathing (Cheyne-Stokes).

Examination: Weight 110 pounds, blood pressure 144 systolic, 88 diastolic, heart rate 90, no murmurs, moist râles in both lung bases. Spleen and liver normal in size. No edema of the legs present. Precordial pain present on walking, reflects into left arm, subsides on standing still.

December 25, 1948: Electrocardiogram compared with March 14, 1947, shows $T_{1\ 2,3}$ less negative. T_4 less exaggerated and delayed intraventricular conduction.

December 21, 1948: Began use of Roniacol, 100 mg. t.i.d. Record of observations by patient and daughter for twenty-five days: following administration showed uniform reaction beginning in five to ten minutes, lasting twenty minutes to one-half hour with marked reddening of face, neck, upper chest, arms, hands, and fingers with this a feeling of warmth in these regions. During this period bouts of pain definitely lessened in frequency. Nitroglycerin used under tongue on the average once a day.

April 11, 1949: Continuing use of Roniacol. Reports that she has definitely less pain than three months ago, but is more active and uses nitroglycerin under tongue four or five times a day as a rule. Warned again against activity producing pain. Instructed to take 100 mg. tablet Roniacol with meals instead of before.

June 10, 1949: Taking drug with meals, she does not get the flushed skin and warm feeling. Is much improved. Can walk several blocks without pain. Blood pressure 134/72, heart rate 78 regular. Has not required nitroglycerin since April.

July 19, 1949: An intercurrent acute bronchitis and coarse râles are present over both halves of chest. She can walk many blocks without pain. Continues 300 mg. Roniacol daily. Blood pressure 135/75, heart rate 90 regular. She walks about her own house in comfort and without pain and can even walk many blocks at moderate gait without pain. The patient and daughter report marked improvement in strength, feeling of well-being and endurance as well as tolerance of exercise, most marked beginning in April, 1949. With periods of colder weather there is so far no increase in painful incidents.

October 22, 1949: Has continued Roniacol 300 mg. daily. Weight 107½ pounds, blood pressure 138/88, heart rate 78 regular. Physical signs as before. She reports she is much improved. She can walk about without pain, but does experience pain usually mild and of short duration if there is excitement. Her general appearance is improved.

Case 6.—T. R., a man, aged fifty-seven, was first seen August 7, 1934. He began to have precordial pain on effort in May, 1933. At times it was so severe and constricting he had to walk "bent over." No dyspnea was noted. He reported that his pulse was slow, 60 per minute when recumbent, but would become rapid on arising. He notes that for the past two weeks pain on effort is increasing in frequency, and yesterday was brought on by excitement. For the past ten years there has been a weight reduction from 190 to the present 170 pounds.

Examination: Height 6 feet, good nutrition, with slight atrophy of skin from weight reduction. Blood pressure 138/85, heart rate 78 recumbent. Heart tones clear; no murmurs. Moderate slowing of heart on right carotid sinus pressure; none on left. Moderate respiratory arrhythmia. Peripheral arteries palpable and show slight tortuosity. General physical examination negative. Ophthalmoscopic examination showed vessels consistent with age Prostate 2+ enlarged, soft, not tender, non-obstructive. Expressed fluid shows 3 to 5 leukocytes and 1 to 3 degenerate cells per high power dry field. Heart contour and size showed no abnormality on a 6-foot x-ray film or orthodiagram. Urine negative with specific gravity 1.028. Hemoglobin of blood 86 per cent. Electrocardiogram showed low T_3 with moderate respiratory arrhythmia.

Diagnosis: Coronary sclerosis with angina pectoris syndrome. Arteriosclerosis 1 plus. Hypertrophy of prostate.

Therapy: Instruction in limiting activity to avoid production of pain. Theocin.

Little change occurred throughout the fall and winter, but on March 12, 1935, it is noted: "Has followed instructions regarding limitation of activity in general. When he starts out to walk may have slight pain and feeling of constriction but if he walks slowly this subsides and he can walk slowly, as he wishes." Weight 178 pounds, blood pressure 142/86, heart rate 84 regular. Again conditions quite stabilized with occasional pain on unusual effort or excitement.

An electrocardiogram June 5, 1939, showed rate of 100, low amplitude of QRS 1, 2, and 3 with R_4 absent and T_4 exaggerated.

In July, 1940, symptoms suggestive of prostatic obstruction developed.

Electrocardiogram July 30, 1940, showed voltage of QRS 1, 2, and 3 increased over June 5, 1939.

August 11, 1940: Intravenous urograms showed moderate pyelectasia and ureterectasia, right, with deformity at base of bladder suggestive of enlarged prostate. Also chronic hypertrophic changes in lumbar vertebrae and right sacroiliac joint.

August 20, 1940: Transurethral prostate resection by Dr. Gilbert J. Thomas with uneventful recovery except for mild left epidymitis which subsided.

In the winter of 1940-41 he was in California and had more frequent anginal pain possibly because of necessary hill climbing, but on return home late in February there were less frequent pain episodes with restricted activity. On resuming theocalcin he thought his range somewhat increased.

In April, 1943, ventricular extrasystoles developed and from that time on until 1948 were quite well controlled by quinidine sulfate, 3-grain capsules given twice daily with morning and evening meals. Theocin, aminophyllin and theobromine sodium acetate were given at various times in doses to limit of tolerance by mouth with variable effect, sometimes seeming to increase tolerance to exercise, again with indifferent results. It is noted that tortuosity and thickening of peripheral vessels has increased to 2+.

November 7, 1946: He reported that on or about October 10, he had an episode of the usual type of precordial pain lasting about six hours which recurred for a shorter period two days later, but he did not call a physician. Since then pain has recurred more readily and earlier on walking. Examination showed blood pressure 150/80, heart rate 80, regular, no fever, no hyperleukocytosis, no increased sedimentation rate of red blood cells and no essential changes in electrocardiogram.

May 17, 1949: He reported after several months' absence. The usual type of precordial pain develops on walking three blocks at a moderate gait. Blood pressure 168/80, heart rate 80 and regular, falls after ten minutes of rest in a recumbent positon to 154/74, heart rate 74. X-ray revealed no changes in heart size or contour since first seen. Hemoglobin 15.5 grams.

May 28, 1949: 100 mg. Roniacol given by mouth three hours after breakfast and observations noted. The reactions were similar to those reported in other cases.

He has been on Roniacol 100 mg. with meals and at bedtime, the past 10 days, and this dosage has been continued through the period of this report.

July 1, 1949: Blood pressure 128/75, heart rate 96. He reports more relief from pain and greater range of activity without pain than he has experienced with any other medication since 1934.

July 23, 1949: Beginning about three weeks ago he took an hour's sun bath daily for six days; none since. During this period he began to notice pain after walking a block or two, the pain going down left arm to the elbow, for the first time in his experience. He ascribed it to sleeping poorly. He quit the sun baths, and the pain attacks "lifted," i.e., he could again walk several blocks without pain.

August 9, 1949: Much improved. Sometimes he can walk at a moderate gait half a day without pain. He notes that the drug is followed shortly by redness and sense of burning and tingling with flush of face, neck, and upper part of torso.

October 1, 1949: Weight 187 pounds, blood pressure 156/85, heart rate 76 regular. If he eats an unusually heavy breakfast he may have precordial pain on walking three or four blocks, but if not he can walk three or four miles without pain. After such a long walk he may have palpitation, with a definite sense of irregularity from premature beats. This may last a few minutes only but on rare occasions three or four hours, or if he walked a good deal on a certain day, he may have the same experience on lying down at night to sleep.

November 23, 1949: Physical condition unchanged. His report: "I am able to walk farther and at a quicker pace without pain than has been my experience since 1934. I walk miles and go many days without pain. I do not tire so readily and my head is clearer."

Case 7.—L. L. S., a man, aged seventy-four, was admitted to the hospital November 24, 1948.

After heavy work at the age of twenty, he began to have pain in the lumbar and sacro-iliac regions and in 1932 his left hip became painful and lame.

In 1935 he had a transurethral resection under spinal anesthesia, involving the median lobe of the prostate. At that time x-ray films showed moderate calcification in margins of intervertebral cartilages, most marked between the first and second vertebral bodies, and the left hip showed slight flattening of head of femur described as "malum coxae senilis, a traumatic form of hip arthritis." Also senile cataracts were noted, most advanced in right eye. The tonsils were reported adherent and infected. Blood pressure was reported 140 systolic, 100 diastolic.

Present condition: Beginning in 1946, he experienced precordial pain on severe exertion, such as mowing the lawn, and beginning about mid-September, 1948, a retrosternal pain has occurred much more readily on exercise, especially after a meal. If he sits down, pain disappears after fifteen to twenty minutes, but if he continues, pain increases, spreads into both shoulders and arms, and into right mandible. The arms feel weak for half an hour after the pain ceases. Digestion good, nocturia once.

Height 5 feet 10 inches, weight 177 pounds (was 212 pounds twelve years ago and 185 pounds a month ago). Blood pressure 162 systolic, 92 diastolic. Moderate atrophy of skin, limitation of about one-third in flexion of left hip, adherent infected tonsils, cataracts most marked in right, peripheral arteriosclerosis 2+ (on a scale of 4). Chest and abdomen revealed no abnormalities. Ophthalmoscopic examination: Left eye showed generalized constriction of arteries with increase of light reflex and marked compression of veins at the arteriovenous crossings. A small superficial hemorrhage was found to the temporal side of the disc between it and the macula. The right eye showed hypertrophic capsular tissue. A six-foot x-ray film of the chest showed the heart diameter 13.1 cm. with a cardiothoracic index of 41 per cent, the heart contour suggestive of left ventricular hypertrophy. The aortic arch showed calcification in the wall.

Urinalysis normal. The hemoglobin was 17.0 grams, white blood count 9,500 in normal percentages. The sedimentation rate of the red blood cells was 2 mm. in one hour. The electrocardiogram showed left axis deviation with flat T_1, and deeply negative T_4 consistent with fairly recent myocardial damage.

Diagnosis: Coronary sclerosis, angina pectoris syndrome, Hypertrophic arthritis of the spine.

Roniacol 100 mg. tablets, was begun November 26, 1948. Taking them before a meal, in about five minutes he experienced the typical flushing and feeling of warmth lasting fifteen to twenty minutes.

His physician writes under date of January 18, 1949: "Mr. S. came in for a checkup this morning and I am happy to report that he has been much better since using Roniacol. On Wednesday of last week he made several trips to town, exerting more than usual, and had a recurrence of his pain. He frankly admits he probably did too much. He is feeling better again and is much encouraged." Shortly after this report the patient discontinued Roniacol, reporting recurrence of anginal attacks and failure to get relief from the drug. It has not been learned whether he has had an extension of his underlying coronary sclerosis.

Case 8.—A. H. C., a man, aged sixty-eight, had been a moderate smoker, and a moderate to heavy user of alcohol up to 1926, but none since. A waiter by trade, he had not worked since 1946.

Examination: Height 6 feet, weight 147 pounds (20 pound weight loss in two years), blood pressure 170 systolic, 100 diastolic, pulse 100 per minute regular.

Diagnosis: Arteriosclerosis with aortic and coronary sclerosis, cardiovascular disease with hypertension and the angina pectoris syndrome, benign prostatic hypertrophy, pulmonary emphysema.

Roniacol was begun in December, 1948, 100 mg. q.i.d. On December 20, 1948, the dosage was decreased to 50 mg. t.i.d. with emotional discomfort. On February 22, 1949, Roniacol was discontinued because of continued abdominal discomfort with increasing cardiac discomfort.

Case 9.—O. F. N., a man, aged fifty-three, a violinist, was admitted to the hospital October 23, 1945. Patient had received an honorable discharge from the U. S. Navy in 1919 because of nervous disability, service connected, and coronary trouble, non-service connected. In 1939 while portaging a canoe, he had had a severe precordial pain lasting three days in all. A diagnosis of coronary thrombosis was made, and he was kept inactive for three months. He resumed teaching the violin until 1942, when he had a severe precordial pain while draw-shaving logs. Again he was compelled to rest. Some months later he began to have retrosternal pain extending into the left elbow on walking a block or more; he would stop, and the pain would promptly subside; he would walk again and have to stop. Within a year, i.e., some time in 1943, he began to have the pain sometimes for thirty to sixty minutes after a meal, on listening to the radio broadcast of a football game, or hearing a fire engine siren.

Examination: Height 5 feet 6½ inches, weight 181 pounds, blood pressure 210 systolic, 142 diastolic. Peripheral arteriosclerosis 1+ (on a scale of 4). Aortic second tone accentuated, no murmurs heard, no visible or palpable increase in precordial pulsation. Digital rectal examination of prostate with expression of secretion revealed 25 to 30 pus cells with clumps per high power dry lens microscopic field. Prostate was massaged at five to seven day intervals by Dr. H. A. Reif, and at the end of two months cell content had reduced to approximately 5 to 8. A gall-bladder dye test and barium gastrointestinal study by x-ray with especial attention to the lower esophagus and cardia revealed no abnormalities. A six foot x-ray film of chest revealed a 40 per cent cardio-thoracic index with normal contours of heart and mediastinum. Urine negative, hemoglobin 18 grams, red blood count 5,500,000, white blood count 6,200 in normal percentages, sedimentation rate of the red blood cells 3 mm. in one hour. Electrocardiogram showed normal complexes.

Diagnosis: Arterial hypertension, angina pectoris syndrome, overweight.

A reducing diet was ordered and instruction in avoidance of effort causing pain was given. He was seen on rare occasions, eight in all, until April 17, 1947, on which date his weight was 165 pounds, and a blood pressure reading was 146 systolic, 100 diastolic. During this eighteen-month interval the weight reduction had been gradual, but the 30 pound weight reduction recommended had been attained only in part. Blood pressure readings varied between 170/95 and 154/100 between December 3, 1945, and March 27, 1947. During this period for approximately the first six months there seemed to be little change in the amount of effort producing pain, but he followed instructions quite carefully and the painful episodes were much less frequent. On rare occasions the pain would occur at night as it had before. Nitroglycerin 1/100 grain seemed to give relief.

He was not seen again until April 12, 1949. There was increasing frequency of pain episodes, less care in avoiding causative effort, and pain was occurring more frequently at night. Weight had increased to 171 pounds, and blood pressure was 172 systolic, 104 diastolic, heart rate 84. No essential changes in physical examination or electrocardiogram. He was given Roniacol in 100 mg. tablets to be taken t.i.d. and instructed again in avoidance of effort causing pain.

April 26, 1949: Blood pressure 210 systolic, 115 diastolic, heart rate 84. Reports same type of reaction after the drug as noted in other patients. A full 100 mg. dose gave so violent and disagreeable a reaction that half tablets (50 mg.) were taken regularly after April 26. Mild reactions occurred in similar fashion if the dose was taken on an empty stomach and no reaction sensed if taken with food. However, he was able to accomplish distinctly more work without pain than formerly. On two occasions he reported bouts of pain about 11:00 p.m. about four hours after taking the drug with a meal and then exercising quite severely.

November 10, 1949: Continues to excite pain on effort with the excuse that there is no one else to perform the services required. He experiences no relief from Roniacol but feels that he does get some relief from quick vasodilators such as nitroglycerine which he takes three, four, and five a day. Roniacol discontinued.

Case 10.—W. J. N., a man, aged forty-eight, was first admitted to the hospital September 27, 1948.

He reports that he froze his hands and feet in 1935 at a temperature of –32° F. but suffered no destructive lesions.

In April, 1948, he thinks he had a sliver or bruise at the tip of the middle finger of the right hand. A sinus was found extending to the bone about the second week in August. Since then there has been marked pain, worse when the hand is held up. The pain is relieved somewhat by holding it at knee level with the body bent forward and the right hand slightly squeezed and massaged by the left hand. This sinus does not heal. About the middle of August, 1948, began to have a brownish spot at the tip of the middle finger of the left hand. Thinks he may have had a slight bruise there. It was painful to touch at the tip where a small crust had developed.

Examination: Height 5 feet 8½ inches, weight 164 pounds, pulse 76 per minute and regular, blood pressure 135 systolic and 80 diastolic. There was a large area of urticaria over the epigastrium and legs. There were numerous lipomata of the forearms, torso and thighs. The mouth is furnished with an upper plate and lower partial. The tonsils are cryptic and buried. The peripheral vessels show a 1+ arteriosclerosis. There is evidence of a discharging granulating area at the tip of the right middle finger. The hands are red and the nails cyanotic. There is a small crust at the tip of the left middle finger; tips of all other fingers are red and tender. There is an area of redness and slight edema of the dorsum of the right foot and over the outer malleolus. He can walk without developing cyanosis in the feet, and on elevation the skin becomes waxy white and is slow to regain its color. X-ray film of the chest shows the heart normal in size and position. The lung fields are clear. X-ray of the right leg shows no evidence of calcification in the vessels.

The hemoglobin is 18.0 grams, red blood count 5,100,000, leukocytes 10,500, with 56 per cent polymorphonuclear cells, 41 per cent lymphocytes, and 1 per cent monocytes. The urine is normal. The electrocardiographic tracing shows normal complexes.

Diagnosis: Peripheral vascular disease, remote result of congelation.

On September 24 the patient was placed on Roniacol in 50 mg. doses q.i.d. He was instructed to take it in two ways: (1) about twenty minutes before a meal and on retiring, (2) with meals and on retiring, and to report if any difference is experienced. He notes that when taken on an empty stomach he would have a distinct sense of warmth around the face, ears, and upper chest and also in both hands, and this positive sense of warmth together with increased redness of hands would persist for one-half hour or more after each dose. This phenomenon did not develop when the drug was taken with the meal. By November 1 it was noted that the hands were healing somewhat, and the distinct impression was gained that the preparation had been effective as a vasodilator in the extremities.

In the meantime, on October 4, a cervical sympathetic block on the left side with 1 per cent novocaine had been done by Dr. Wallace I. Nelson. The regions of the upper, medial, and lower left sympathetic ganglia were each infiltrated with 10 c.c. of a 1 per cent novocaine solution. After this had been done the patient stated that the left hand did not feel any warmer than the right but "it felt like it felt years ago." It felt normal while the right hand had a "tingly" feeling. After this procedure, the lateral cord of the plexus was injected and this produced an immediate sensation of warmth in the left extremity. This tends to show that it is a nerve supply to the vascular system of the extremity that is involved.

On the basis of this information a right-sided high thoracic sympathectomy of the pre-ganglionic type under sodium pentothal anesthesia was done by Dr. H. F. Buchstein assisted by Dr. Wallace I. Nelson. The procedure was accomplished without difficulty, and the patient was returned to his room in good condition. The pleura was not opened.

The Roniacol was continued after the operation, and healing of the left middle finger continued but was slow, and on November 17, 1948, a high thoracic sympathectomy, pre-ganglionic type, was done on the left side. The same procedure was carried out on the left side as was done on the right. On December 1, 1948, it was noted that the wounds of the fingers were well healed and the fingers warm.

Case 11.—E. M. G., a man, aged thirty-seven, a patient of Dr. G. G. Bowers, was first admitted to the hospital April 5, 1949.

The patient had had poliomyelitis at age three, but sustained no residual paralysis. He was an office executive, a social drinker, smoked one package of cigarettes a day and drank six to ten cups of coffee daily.

He began having pain in the left great toe early in November, 1948, which would persist a day, then be gone three or four days. He had been hospitalized in March, 1949, for three days. After discharge from the hospital all his toes turned "black and blue," and he had severe pain in the toes and muscles of the lower leg. Under the nail of the left great toe the pain was very severe and throbbing. The left now developed a pain on walking one and one-half blocks and exhibits red painful areas in the lower half of the leg.

Examination: Height 5 feet 4 inches, weight 163 pounds, temperature 98, heart rate 80, blood pressure 140 systolic, 88 diastolic. Reflexes normal. On walking there is a marked cyanosis of the left foot and great toe. Moderate cyanosis of the right foot is relieved by elevation. The feet feel cool to touch. The posterior tibial and dorsalis pedis pulsations are not evident on the left, and the popliteal pulsation is weak. Good pulses are present on the right. A six foot film of the chest shows a cardio-thoracic index of 50 per cent. X-ray films of the legs show no evidence of calcification in the vessels. Dental x-ray survey for vitality shows all negative. Kline exclusion test for syphilis is negative. Urinalysis negative, hemoglobin 15 grams, red blood count 4,270,000, white blood count 15,000 with a normal differential count, sedimentation rate 6 mm. in one hour, blood uric acid 4.75 mg. per cent (April 11) and 4.0 mg. per cent (April 9).

Diagnosis: Thrombo-angiitis obliterans (Buerger's Disease).

April 9, 1949: Began Roniacol 100 mg. t.i.d.

April 18, 1949: On taking drug has had flushing in face and forearms beginning in five to ten minutes—this lying down but not if up and about. Pain is now limited to the throbbing pain under his left great toenail. Posterior tibial and dorsalis pedis artery pulsation on the left is now felt whereas it was formerly absent, but the pulsation is weaker than on the right. The left foot is cool to the ankle. Today he walked thirty blocks without leg pain.

Dosage of Roniacol increased to 150 mg. q.i.d. (600 mg.) daily.

After two days of increased dosage all the pain had disappeared from the left leg and foot, and he reported that now after taking the drug "I would really get red" with a more marked burning and prickling sensation in the top of his head, in the face and forearms. He has experienced no sweating at any time.

Following the demonstration of circulatory improvement by vasodilatation, a left lumbar sympathectomy was performed by Dr. Wallace I. Nelson on June 3. At the time of the operation, smoking was discontinued and has not been resumed.

On June 9, the sixth day postoperative, the left thigh, leg and foot were distinctly warmer to touch than the right, and the skin color definitely redder. Pulsations were felt in the popliteal dorsalis pedis and posterior tibial arteries. On the right the pulse in the popliteal artery was faint, in the dorsalis pedis absent and in the posterior tibial faint. Blood pressure 128 systolic, 74 diastolic, heart rate 78, regular. 100 mg. Roniacol were given with water on an empty stomach at 8:45 a.m. Observations revealed a brief blood pressure rise to a maximum of 132 systolic, 84 diastolic, which later returned to 126 systolic, 74 diastolic, the heart rate rising to 90 within fifteen minutes and promptly, i.e., within twenty-five minutes, subsiding to 72 per minute. Beginning within twelve minutes, paresthesia with a sensation of warmth in the face, ears and neck spread to the upper chest and later to the arms, with visible marked flush of same areas and increased warmth to palpating hand. In exactly twenty-minutes he announced that while previously there had been some pain in left toe, this had now ceased. Redness and paresthesia lasted a full hour. Within three weeks after operation, he resumed his full duties in business and has remained well and at work.

November 17, 1949: He has taken no Roniacol since September 15, 1949. He reports that since the operation the left thigh and leg and especially the foot are constantly warmer than the right. The right foot and ankle often feel cold to touch and often on retiring he has a sensation of cold in this foot. He then places the sole of foot on left thigh and it soon becomes warm.

Examination: Weight 166 pounds, blood pressure 122 systolic, 76 diastolic, heart rate 75 regular. General physical examination negative except for legs and feet. Left thigh, leg and foot are warm to touch, definitely brighter pink in color than the right and there is prompt return of a pink color to the skin after removal of pressure. He reports there is no sweating in this extremity. Right thigh and upper two-thirds of right leg are approximately as warm to touch as the left but there is less redness to the skin. Below a fairly well demarcated line between the middle and lower thirds of the leg, the skin temperature is palpably much cooler than the left and return of color after release of pressure is slow. On walking briskly no color change is noted in the left foot and ankle, but the right becomes paler and on resting a faint cyanosis is visible. On elevating and depressing the right foot, color changes develop slowly as compared to the left.

Case 12.—E. S., a man, aged seventy-seven (reported by Dr. A. L. Miller), was first admitted to the hospital May 1, 1949.

Examination: Height 5 feet 5½ inches, weight 120 pounds, previous weight 160 pounds, forty pounds weight loss in the past four to five years. Blood pressure 184 systolic, 90 diastolic, heart rate 60 per minute. He is lean ruddy faced, sullen, obstinate and negativistic. He has neurotic excoriations on his back, has presbyopia but does not wear glasses, all his teeth have been extracted, and his chest is emphysematous. The heart apex is in the fourth interspace at the nipple line; a 2+ systolic murmur is heard at the apex. The peripheral vessels show tortuosity and thickening, arteriosclerosis 4+. No posterior tibial or dorsalis pedis pulsation can be felt. The left leg had been amputated above the knee because of an accident in 1946. In the dependent position the right leg shows a marked cyanosis up to the knee. On elevation there is a marked pallor, a rubor when lying down. He has been under treatment with niacin, nitranitol and various other vasodilator drugs without improvement.

Diagnosis: Arteriosclerotic peripheral vascular disease of the right leg.

September 27, 1949: Roniacol 100 mg. q.i.d. with meals was begun. With the first dose given before a meal, he became so flushed and confused that the nurses were alarmed. The flushing and confusion lasted for about an hour. Later doses that day were given with meals. After a week he still flushed considerably and had some restlessness up to one-half hour or more after each tablet of Roniacol.

October 7, 1949: He appears to have less acrocyanosis and more warmth. Flushing still occurs after Roniacol.

October 15, 1949: Conditions about as above. No pulsation can be felt.

October 20, 1949: After taking Roniacol flushing is less. Patient is more co-operative, speaks a few words, and there is less acrocyanosis and definitely more warmth but no pulsation in the extremity.

October 21, 1949: Leg is less cyanotic but definitely warmer and the patient desires less covering over the leg. In the dependent position there is distinctly less cyanosis than previously. On taking the drug, flushing and sense of warmth begin in about ten minutes, last for about one-half hour, and then tingling and restlessness diminish gradually. Since October 15 patient has been more alert, less obstinate and speaks occasionally though rarely. He has in the past usually sat uncommunicative in the corner. The past few days he has been wheeling his chair up and down the hall. It is difficult to associate this fact with the medication but it is not accounted for otherwise. Roniacol has definitely benefited this man as to peripheral vascular dilation and circulation, but as to cerebral stimulation further treatment and evaluation will have to be made. The medication is tolerated and has been taken more readily in the past two weeks. Prior to this time he would spit out any medication. In that it is hard to communicate with the patient we cannot evaluate our treatment from the subjective side other than his apparent willingness now to take Roniacol.

Case 13.—H. K., a woman, aged ninety-two (reported by Dr. A. L. Miller).

No past family history is available as the family is quite passive concerning the patient. No children are living.

Examination: Height 5 feet 2 inches, weight 138 pounds, no essential change for several years. Blood pressure 142 systolic, 80 diastolic. Urinalysis showed a trace of albumin, no casts, no pus. Wassermann test negative. Blood normal on examination. The right hip has been nailed. She has generalized arteriosclerosis with mild senility, hypertrophic arthritis, cardiovascular disease with previous hypertension.

The patient was admitted July 29, 1949, with deep gangrenous ulcers of both heels due to arteriosclerosis and decubitous pressure. The ulcers did not heal and on August 16, 1949, penicillin 300,000 units started daily and Roniacol 100 mg. q.i.d. daily, given after meals. Heat lamp and zephiran chloride irrigations started; also oral unicaps t.i.d., and the patient began sitting up in a chair.

August 23, 1949, penicillin was discontinued as the pus was gone, the ulcer craters were clean and granulations noted. The skin felt warm, and the patient reports some tingling sensations after taking the medication. The margins continued to heal, and on September 10, 1949, zephiran chloride irrigations were discontinued. She expressed no discomfort from Roniacol.

September 30, 1949: The ulcers were nearly healed.

October 10, 1949: Epithelization was complete and the ulcer entirely healed. The skin of the extremities was warm.

Case 14.—F. E., a man, aged eighty-four, was seen April 19, 1949 (reported by Dr. A. L. Miller).

Examination: Height 5 feet 10 inches, weight 138 pounds, a gradual loss from 180 pounds in the past twenty years. The patient is a large boned, muscular man. Blood pressure 196 systolic, 100 diastolic, pulse 68 per minute, absolutely irregular. Wassermann test negative; sputum negative for acid-fast bacilli; blood and urine negative. Skin dry and atrophic, toe nails deformed; chest, barrel shaped and emphysematous, inspiratory and expiratory musical wheezing, depressed lung borders and little chest expansion. Heart tones soft, absolutely irregular, rate 68; apical beat visible at nipple line fifth interspace, no murmurs. The peripheral vessels showed tortuosity, arteriosclerosis 4+. Dorsalis and post tibial vessels not palpable on the right. Left leg had been amputated for arteriosclerotic gangrene in 1947. A gangrenous ulcer is present on the right heel, 4 cm. in diameter with a gray foul-smelling pus. The surface of the os calcis is exposed, and there is a black ring at the margin. The skin about it is dry and cool.

Diagnosis: Arteriosclerosis, decubitus ulcer right heel.

On April 19, 1949, treatment was begun with a heat lamp and frequent turning in bed with daily irrigation with zephiran chloride 1:1,000. By May 13, 1949, there was no improvement and the os calcis was clearly visible. 300,000 units of penicillin were given daily. Heat lamp, irrigations and frequent turning were continued.

May 25, 1949: The wound was cleaner; oozing pus had discontinued, healing was stationary. Penicillin was continued and vitamin B complex and vitamin C started.

June 10, 1949: The ulcer was dry but not healing. Roniacol, 100 mg. q.i.d., started.

June 17, 1949: The size of the ulcer has not decreased but the darkened margin is showing granulation as is the base of the ulcer. Penicillin discontinued. Roniacol, 800 mg. daily, continued.

June 21, 1949: Infection seems to be increasing again, and penicillin 300,000 units daily resumed.

June 28, 1949: Penicillin, vitamin B. complex and vitamin C stopped. Roniacol 400 mg. continued. Ulcer margin has closed in about 25 per cent. The foot feels warmer. No dorsalis pedis or post-tibial artery palpable. Use of heat lamp discontinued.

July 8, 1949: Foot feels warmer, ulcer about 50 per cent less in depth and extent. Acrocyanosis of toes and distal half of foot is decreasing. The skin of the leg seems to show less atrophy than before.

August 15, 1949: Ulcer nearly closed. Skin of foot and leg nearly as warm as thigh.

September 8, 1949: Ulcer covered and scar contracting, foot warm.

September 15, 1949: The Roniacol has been temporarily discontinued; foot perceptibly cooler. Acrocyanosis greater. Roniacol resumed.

October 25, 1949: Ulcer has entirely healed. Roniacol continued.

Case 15.—J. A. C., a housewife, aged fifty, was admitted to the hospital October 3, 1949.

Patient had had a duodenal ulcer in 1943. Symptoms had been relieved by dietary regimen and medication. Symptoms of osteo-arthritis in the knees in 1946 had been relieved by weight reduction. A mild acne rosacea of the nose, cheeks and forehead was present. Menopause occurred in 1948. Her childhood home had been broken by her parents' divorce. She is highly sensitive, highly reactive, has often had a feeling of guilt for "pushing my parents out of my life" after her marriage and resents her husband's feeling that she is wholly responsible for the children.

Beginning about 1943, she began to experience attacks in which the four fingers of each hand would become pale and numb. Prolonged rubbing would result after many minutes in some return of sensation but the fingers would become blue, sting and burn, eventually becoming normal in color. These attacks were brought on by exposure to cold or by activities involving elevation of hands and arms such as painting, hanging out clothing, et cetera.

Examination: Height 5 feet 2 inches, weight 142 pounds, blood pressure 125 systolic, 72 diastolic, heart rate 75 regular. General physical examination was negative except for very mild acne rosacea. The color of her hands was normal at rest but on elevating them above the level of the shoulders for one minute and then placing them on her knees, her fingers were at first noticeably pale and her sensation to touch was greatly reduced. She described the sensation as "numb." In about thirty seconds her fingers became definitely cyanotic, and she described a burning sensation. Cyanosis with slow return of color after release of pressure persisted for about ten minutes.

Diagnosis: Raynauds disease.

October 3, 1949: Began Roniacol, 50 mg. before each meal and on retiring.

October 11, 1949: Patient stated that she at first took 50 mg. of Roniacol before each meal which was followed in about ten minutes by a "fiery redness" of the face, neck, upper chest and arms with a "burning" sensation over the same areas. For the first three days there was brief colicky pain in the stomach region before the redness of the skin appeared. After this she took the drug with meals and on retiring, experiencing only a mild flush but no pain and no burning sensation. On the third day of use while doing dishes, she experienced an unusually mild attack in which her fingers became "tingly" but not numb. On the fourth day she forgot the remedy before retiring and had a more severe attack with numbness but less pallor than usual. With the cyanotic period some swelling of fingers occurred. Since that time she has been free from attacks even under provocation, except that on the eighth day of medication, while peeling apples, pallor and numbness developed but normal sensation and appearance developed promptly with rubbing. This occurred much more promptly and readily than before the use of the drug. (She recalls now that at childbirth on December 10, 1924, she had scopolamine twilight sleep, and for a month following this had cold, numb hands. This ceased after a month, to recur paroxysmally in about 1940.

October 26, 1949: She finds that best results are secured by taking 50 mg. of Roniacol with a small breakfast and 100 mg. at noon and evening meals. She was directed to take either 50 or 100 mg., whichever she finds convenient, on retiring also. She reports she can do much more and can tolerate more severe cold than before. On a cold morning recently she had mild symptoms and mild pallor in the fingers. She is now driving her car with comfort, although for eight years she has not dared to drive the car on cold days.

From last reports she has only slight symptoms with the hands, is much better in every way, and is less nervous, irritable and apprehensive than before.

ASSOCIATED DISEASES OF THE SKIN AND EYE

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THERE are a large number of diseases which may jointly involve the eye and mucocutaneous surfaces of the body and are therefore of mutual interest to the dermatologist and ophthalmologist. It is the purpose of this discussion to invite attention to some of the more interesting diseases which fall into this category, and to elaborate upon their clinical manifestations.

Among the more common diseases which demand the collaboration of specialists in these two fields is rosacea. It is a disease of adult life which attacks the skin of the face, involving particularly the nose and cheeks. Transitory attacks of vasodilatation in these areas finally become permanent with concomitant hypertrophy of the sebaceous glands, which usually become chronically infected. The etiology of this very disfiguring condition remains obscure, although abnormality of the gastric secretion with achlorhydria, a diet excessively rich in carbohydrates and condiments, over-indulgence in alcoholic beverages and endocrine disturbances have all been suggested as possible incriminating factors. The ocular lesions usually commence as a mild blepharoconjunctivitis. At a later stage, corneal involvement occurs, and unless effective therapeutic measures can be effected, serious visual damage may ensue. Initially, there occurs a marginal vascularization of the cornea. As vascularization progresses, greyish subepithelial infiltrates are noted. Ultimately, the process involves the corneal stroma, advancing relentlessly toward the pupillary area of the cornea. The vascular loops become more prominent and as the overlying epithelium degenerates, ulceration usually attended by secondary infection takes place. Finally dense, facetted, chalky-white and heavily vascularized scars are formed. Systemic treatment is of importance. The diet should be properly regulated, with a reduction in the carbohydrate intake. Condiments of all varieties should be interdicted. Large amounts of riboflavin should be administered. Roentgen and ultraviolet therapy to the facial lesions is often beneficial. Local antiseptics are of value in combatting secondary infection in the eye, and the photophobia and blepharospasm which may be quite marked are alleviated by means of atropine and tinted lenses. The corneal lesions respond to beta irradiation in a sufficiently high proportion of cases to warrant a thorough trial with this type of therapy. Quite recently desensitization to the male sex hormone has been advocated. With this latter procedure we have had no firsthand experience, but recent reports in the ophthalmic literature have been encouraging.

Erythema multiforme is still another disease which affects both the skin and eyes. Of toxic origin, it is often accompanied by fever, generalized malaise and joint effusion. The skin eruption characteristically consists of symmetrically situated, circular, well-demarcated erythematous patches, associated with a central edematous exudate. The hands, forearms, face and legs may be involved, as well as such mucous surfaces as the conjunctiva, mouth and vagina. Not infrequently the conjunctival lesion is the initial manifestation. It may assume a catarrhal, purulent, or pseudomembranous form. In the catarrhal variety, numerous raised areas appear on the bulbar conjunctiva. The adjacent conjunctiva becomes markedly congested. Secretion is scanty, but lacrymation, blepharospasm, photophobia and intense itching are usually noted.

The so-called Stevens-Johnson syndrome, with cutaneous rash, severe stomatitis and profuse conjunctival discharge is rare. Marked chemosis, subconjunctival hemorrhages and marked conjunctival exudation, followed by corneal involvement usually constitutes the course of events. Ulcerative keratitis with performation of the globe and loss of the globe has been known to occur.

The most common ocular form of the disease is pseudomembranous conjunctivitis. The membrane usually involves both palpebral and bulbar surfaces. Edema of the lids, chemosis of the conjunctiva and profuse exudation are prominent features of the pseudomembranous form. As a rule, corneal involvement with varying degrees of opacification takes place and a fulminating type of exudate cyclitis may further complicate the clinical picture.

Treatment consists of frequent instillation of mydriatic drugs such as atropine, penicillin locally and sulfa drugs or penicillin systemically in heavy doses; however, it must be remembered that the sulfa drugs may produce this condition. If there is a profuse discharge, frequent argyrol and boric irrigations may afford some relief. While the illness may be severe from the general standpoint, recovery is the rule. There may be, however, severe visual damage as a sequela of the keratoiritic process.

Erythema nodosum is another disease of obscure origin which evinces a predilection for children and young adults of the female sex. Both rheumatic fever and tuberculosis have received attention as possible etiological factors. The skin eruption is ushered in with joint pains and high fever. The cutaneous involvement consists of dark red or purplish red swollen areas which appear in successive crops over the arms, legs, shoulders and face. The edematous plaques involve the entire thickness of the integument and have a highly distinctive appearance. Concurrently, subconjunctival lesions may occur. These are usually located between the cornea and caruncle. They are either vesicular in appearance or may be nodular and are freely movable over the underlying sclera. No treatment is indicated, since the ocular lesions disappear as the general disease subsides.

In 1889, Doyne reported the first well-documented case of angiod streaks of the choroid. This condition, which is frequently associated with pseudoxanthoma elasticum of the skin, was first recognized by Groenblad and Strandberg as a generalized disease of elastic tissues with the eye as a special site of predilection. Essentially, the disease involves the corium of the skin and lamina vitrea of the choroid. It is thought to be due to an inherited developmental defect of elastic tissues in the regions cited above. It may occur at any age but usually occurs before the age of forty. The skin lesions, first described by Darier, consist of a symmetrical thickening, softening, and relaxation of the skin, particularly in the folds in proximity to large joints. A yellowish discoloration of the affected skin takes place. In the eye, the lesions are always bilateral. The subretinal streaks resemble blood vessels in appearance. Their color may be red, brownish or gray. Ordinarily, the streaks anastomose in the region of the nerve head, sometimes forming an incomplete circle from which the angioid streaks radiate toward the equator. The streaks invariably lie behind the retinal vessels, and histopathologic investigation has shown that they represent rupture of Bruch's membrane, the lamina vitrea of the choroid. Frequently, retinal involvement with severe disturbance of central vision occurs as the result of transudation or hemorrhage through the ruptures in the lamina vitrea. Eventually connective tissue proliferation takes place and a pseudotumor involving the macular region may result. This lesion closely resembles the disciform degeneration which is so characteristic of Kuhnt-Junius disease.

Molluscum contagiosum is an infectious disease which frequently affects the lid margins and conjunctiva, as well as any of the skin surfaces. A filter-passing virus is the causative agent, and the lesions are very characteristic in appearance, consisting of small circular tumors with an umbilicated center from which necrotic tissue containing the molluscum bodies can be expressed. Catarrhal conjunctivitis or even actual conjunctival growths resembling those seen in the skin and lid margins constitute the usual ocular findings. Expression of the contents of the tumor and cauterization with pure phenol constitute the treatment of choice. Sulfapyridine has also been advocated in small children.

A peculiar and somewhat rare form of uveitis which is invariably accompanied by dysacousis, alopecia, poliosis and vitiligo has been reported by a number of ophthalmologists. The uveitis is severe, and visual damage is the rule. No definite cause has ever been ascribed to this curious syndrome which is usually given the eponymic designation of Koyanagis' disease. A virus etiology has been suggested. Treatment of the uveal tract inflammation is nonspecific, and the partial deafness and cutaneous manifestations do not respond to any form of therapy. The disease principally affects both sexes about equally between the ages of twenty and forty. Poliosis may also occur in sympathetic ophthalmia.

Thallium poisoning deserves mention because of the fact that this heavy metal has occasionally been used as a base in the preparation of depilatory agents. Prolonged use of such agents may be attended by the development of a chronic toxic retrobulbar neuritis. It is prudent, therefore, in toxic amblyopias of obscure origin to question the patient closely concerning the use of substances which have been employed to remove superfluous hair.

Of the vitamin deficiency states which may affect the eye and skin, vitamin A deficiency and ariboflavinosis are of interest. In the former state, the skin becomes loose, its normal texture becomes dry and scaly, and finally keratinization takes place; while in the eye Bitot's spots appear, the cornea loses its translucency, and actual keratomalacia develops. Night blindness may appear as an early sign of lack of vitamin A. If individuals fail to ingest adequate amounts of riboflavin, quite characteristic fissures appear at the angles of the mouth and nose. These tend to bleed readily, become macerated and their appearance is pathognomonic. In the eye, the chief finding is excessive limbal vascularization. In both of these conditions the treatment is self-evident.

A distressing condition which frequently involves the skin of the lids and which may become quite disfiguring is xanthelasma. It is most frequently accompanied by a significant elevation of the cholesterol content of the blood and often occurs in diabetic patients. The typical lesions consist of raised, yellowish plaques situated in the superficial layers of the skin of the eyelids, the upper lids being involved more commonly than the lower. Careful surgical excision of the lesions offers the best method of remedying this unsightly condition. Because of the loose structure of the skin of the eyelids, an excellent cosmetic result can be obtained by surgical methods in the majority of instances.

Of the so-called phakomatoses, tuberous sclerosis associated with adenoma sebaceum is of considerable interest. The typical butterfly pattern of the adenomatous lesions over the upper cheeks and nose is diagnostic. In the eyes, retinal tumefactions may occur in the retina and optic nerve. The intraocular lesions consist of greyish-white or yellow, well-delineated elevations. More rarely mulberry-type retinal tumors are seen. The disease, which is familial and degenerative in character, not only involves the skin, eye and brain, but often the heart and kidneys as well. Because of the cerebral lesions epilepsy is common. The disease is usually fatal.

Von Recklinghausen's disease is another of the phakomatoses with both skin and ocular findings. The cafe-au-lait spots in the skin are easy to recognize. Pigmented naevi and multiple tumors of peripheral and cranial nerves are other manifestations. Tumors of the optic nerve and retina similar to those seen in tuberous sclerosis are not uncommon. Many authorities hold to the opinion that tuberous sclerosis and generalized neurofibromatosis are closely related, the former disease affecting chiefly the central nervous system and the latter principally the peripheral nerves. This variety of the phakomatoses, von Hippel-Lindau's disease or angiomatosis retinae et cerebellae, while involving the eyes, does not give rise to lesions of the mucocutaneous system.

A rather unusual form of glaucoma may occur in patients with nevus flammeus or port-wine stain of the face. This conditon, spoken of as Sturge-Weber disease, may exhibit considerable variation in its clinical picture. The vascular nevi involving the face occur in the distribution of the trigeminal nerve. As a rule, one side only of the face is affected. If the glaucoma occurs in infancy, buphthalmus occurs; while in later life the glaucoma is similar to that seen in the chronic simple form. Cortical calcification occurs in the brain and is accompanied by convulsive seizures. Mental deterioration is the rule. The glaucoma must be treated by means of miotic drugs and, if medical therapy is unavailing, by means of some type of external fistulizing procedure. The port-wine stain is best left alone.

One of the more common diseases of mutual interest to the ophthalmologist and dermatologist is neurodermatitis involving principally the lids. The redness, swelling, intense itching and characteristic corrugated appearance of the lids renders the diagnosis simple. Treatment, if specific allergenic factors cannot be elicited, consists in avoidance of soap and water to the affected region and the application of antihistaminic unguents. These are extremely effective in allaying the marked itching. In women particularly, the possibility of allergy to cosmetics, particularly face powder, eyelash dyes, and nail polish must be carefully excluded.

Another condition of interest is allergic blepharoconjunctivitis due to contact with drugs which are instilled in the eye or applied to the lids. Atropine, pilocarpine, eserine, penicillin and the various sulfa compounds are the most common offenders. The clinical picture resembles that seen in ordinary eczema or neurodermatitis of the lids, although in atropine sensitivity hypertrophy of the conjunctival lymphoid tissue is quite usual. If therapeutic drops such as eserine or pilocarpine are employed over a considerable length of time to combat glaucoma, a drug sensitivity occasionally develops and will necessitate the use of other miotic compounds. A few patients exhibit a violent local reaction to the various anesthetic agents commonly employed to reduce conjunctival and corneal sensitivity. In the event such a drug sensitivity is noted, it is advisable to note the fact in bold letters in some conspicuous place on the patient's clinical record. A common practice among ophthalmologists is to stamp in red ink across the chart the statement "Sensitive to (name of drug)," the blank space being filled in by hand with the name of the offending drug.

Among the most refractory problems common to dermatology and ophthalmology is the treatment of seborrheic blepharoconjunctivitis. The diagnosis is made through the characteristic appearance of the eye lesions. The skin of the lid border is covered with small white, dandruff-like scales. The lid border is red but not ulcerated. Examination of the scalp and external auditory canals reveals an excessive seborrheic secretion. Scrapings from the lid margins reveal the presence of pityrosporum ovale. Seborrheic blepharitis, unlike the type due to chronic staphylococcus or Morax-Axenfeld bacillus infection, will not respond to antibiotics or sulfa drugs used in conjunction with vaccines and mechanical expression of the contents of the Meibomian glands. The seborrhea of the scalp and brows should be brought under control before commencing treatment to the lids and lashes.

Herpes simplex is caused by a filterable virus. The inoculation of the vesicle fluid into the scarified cornea of a rabbit will produce a keratitis, and encephalitis results from succeeding animal transfers.

The eruption may occur on the skin or mucous membranes. It is usually preceded for a few hours by itching, burning, and a sensation of tenseness; later it becomes erythematous and slightly edematous. On this inflammatory base, vesicles develop. These are usually of pinhead size and filled with a serous fluid. After one or two days the contents become cloudy and purulent and the vesicles dry to become serous crusts. The crusts fall off in five to ten days and the residual erythematous macule soon disappears. Regional lymphadenopathy is a rather common finding. In the eye herpes simplex produces irritation, the vesicles rupturing rapidly to leave small abrasions in groups or rows; rarely ulcers are found. The abrasions usually heal promptly without leaving any opacity. The involvement is generally unilateral.

The treatment of the presenting attack is rather simple. If seen in the vesicular stage, drying agents should be used. Spirits of camphor is easily and effectively applied; calamine lotion, lotio alba, and weak solutions of lead are also used. In the crusted stage mild ointments such as boric or weak ammoniated mercury are employed to keep the crusts soft.

The recurrent form will often tax the ingenuity of the clinician. Precipitating factors, if known, should be avoided. Foci of infection should be eradicated. X-rays and ultraviolet light seem to be helpful in some recurrent cases. Vaccine made from the herpes virus is advocated by some authorities but repeated vaccination with the standard vaccine used for smallpox immunization produces equal or better results.

Herpes zoster is a herpetiform eruption occurring along the distribution of one or more of the posterior ganglia or of the cranial nerves. The eruption occurs as grouped vesicles on an erythematous base. It is usually always unilateral. Neuralgic pains may precede the eruption by a day or two and when occurring in the right lower quadrant of the abdomen have been mistaken for appendicitis. This pain may persist long after the eruption has disappeared, especially in the debilitated and the aged.

Scarring is uncommon unless severe pustulation or gangrene has occurred. If the ophthalmic division of the fifth nerve is attacked, herpes zoster ophthalmicus results. If the eyeball is implicated, one finds that the cornea becomes insensitive and presents vesicles which progress to an ulcerative lesion. There may be diffuse deep infiltration with involvement of the iris and the ciliary body. The ocular lesions are treated by moist warm compresses of boric acid or weak solutions of mercury bichloride. Atropine must be employed if the anterior uvea becomes involved.

In treating the skin lesions so many various forms of therapy have been advocated that one wonders if any are of value. Some authorities feel that occlusion is helpful. This may be done by liquid adhesive, collodion, or by thick cotton dressings. Other men feel that soothing lotions such as calamine or zinc lotion are indicated. In the crusted stage, mild ointments such as cold cream or boric ointment are used. For the relief of pain, various injections have been advocated, with equivocal results. These include autohemotherapy, pituitrin, pitressin, thiamin chloride, sodium iodide, and DHE 45. Aspirin, phenacetin, codeine, and other analgesics are necessary for the relief of pain.

Cavernous sinus thrombosis causes dilated facial veins, protrusion of one or both eyeballs, and sometimes papilledema of the corresponding eye and immobility of the eyeball. The skin assumes a dusky-red color of the entire area with the veins standing out in bas-relief. Signs of a furuncular infection (that may have produced the thrombosis) may still be evident on the skin.

Lipoid protienosis is a rare syndrome characterized by yellowish-white plaques on the skin and oral mucous membranes, and an associated warty condition of the skin. The scalp shows a sparse growth of hair and there are bead-like whitish papules on the eyelids and the eyelashes are absent. There is probably an underlying constitutional disturbance, and many of the patients show a diabetic tendency. Treatment with a low carbohydrate diet and insulin will cause a disappearance of most of the lesions of the skin and mucous membranes.

Hydroa is a vesicular and bullous disease that tends to recur each summer during childhood. It is much more common in boys and tends to disappear about the time of puberty. The milder forms which are characterized by papules and small vesicles is referred to as hydroa aestivale while the severe type with bullae, impetiginous crusts and pitted scars is called hydroa vacciniforme. The lesions are most common on the face, dorsal hands, and the extensors of the extremities. Lesions of the cornea will cause scarring and interfere with vision, while the conjunctival lesions resemble those seen in vernal catarrh. Some cases are associated with porphyrinuria which may account for the photosensitization. These cases will show the characteristic wine-colored urine and discolored teeth. The treatment of hydroa is the avoidance of sunlight, use of nicotinic acid, and soothing local applications.

Dermatitis herpetiformis is an uncommon, chronic, relapsing, itching, burning disease which may present ocular complications. The lesions may be erythematous, papulovesicular, vesicular, bullous, or urticarial. They tend to occur at sites of predilection, on the elbows, knees, scapulae, and the sacrum. The ocular lesion implicate the conjunctiva and cornea. The etiology is unknown but is thought strongly to be a virus. The tendency to grouping in this disease is so marked that the diagnosis is hard to establish in its absence. The mucous membranes are not frequently involved and only then when the bullous lesions are predominant. Sulfapyridine seems to control this condition probably better than any other single medication. However, it is not curative and must be continued in small doses for most of the patient's life. Penicillin also appears helpful. Arsenicals by mouth (either acetarsone or in the inorganic form as Fowler's solution or Asiatic pills) seems helpful. Benadryl relieves the pruritus in some cases but has little effect on the course of the lesions.

Reiter's disease is a clinical syndrome consisting of urethritis, arthritis and conjunctivitis; however, skin lesions similar to those of gonorrheal keratoderma are also observed. It is probable that these two diseases are the same except that one is due to a known agent and the other to an unknown organism. The favorite sites of the skin lesions are the palms, soles, elbows and knees, although it may be widespread. The primary lesion is a vesicle and secondary changes of pustules, crusts and keratoses develop. The keratoses appear early as small yellow, waxy cones that grow darker as they become older. The conjunctivitis is usually bilateral and is occasionally accompanied by iritis. Hemorrhages and purpuric lesions of the conjunctiva and mucous membranes, as well as of the skin, may occur. Treatment is not too satisfactory. Penicillin, aureomycin and streptomycin as well as the sulfa drugs have proved disappointing. Hyperpyroxia, either by mechanical means or by intravenous injections of typhoid vaccine, may be tried.

Heerfordt's disease is characterized by iridocyclitis, peripheral facial weakness, recurrent laryngeal nerve disturbances and nodular enlargement of the parotid gland. There may also be the cutaneous lesions of sarcoid. The lesions of the eye and the gland also have the histologic picture of sarcoid. On the skin the lesions are of a dull, yellowish-red or brown color that tend to involute in the center and spread as a raised ring at the periphery but may occur as nodules and plaques. Lesions may also be found in nodes, lungs, bones and other organic tissues. The treatment is largely nutritional through a high caloric, high vitamin diet and injection of crude liver extract. X-rays and ultraviolet to the individual lesions are helpful, and small individual lesions may be destroyed by cryotherapy.

Osler's disease or hereditary hemorrhagic telangiectasia causes recurrent epistaxis with multiple telangiectases of the skin and mucous membranes. The pathologic lesion seems to be small tufts of dilated capillaries scattered superficially over the skin and mucous membranes. The chief symptoms are bleeding from the nose, beginning in early childhood, but may occur in later life, and bleeding from the skin and other mucous membranes following slight trauma. There is no effective treatment.

Behcet's syndrome includes simultaneous or separate episodes of aphthous (herpetic) lesions in the mouth, on the genitalia and ocular symptoms which are usually a chronic recurrent iritis sometimes accompanied by uveitis and neuritis. The disease is more common in men and is probably of virus etiology. No specific therapy is known. There have been no reports but a trial with aureomycin may be indicated.

Acanthosis nigricans is a rather rare condition characterized by hyperpigmentation with papillary hypertrophy. These usually occur at sites of predilection but may be universal. On the skin, the lesions are usually found in the axillae, on the neck, about the arms, umbilicus and on the flexors of the extremities. On the mucous membranes, the conjunctiva, buccal mucosa and palate are most commonly involved; however, pigmentation is usually absent here, and only papillary hypertrophy is noted. About 50 per cent of cases occur in the younger age groups and are associated with some form of endocrine dysfunction; in the remaining 50 per cent that occur in the older age group some form of internal malignancy is present. Mild salicylic acid or resorcin salves will give symptomatic relief on the skin, but the cause should be searched out and treated.

In pediculosis, the crab louse usually restricts its activity to the genital regions but may spread to the axillae, eyebrows and eyelashes. In the course of its migrations there may be bluish or slate-colored macules (maculae caeruleae) which are formed by a secretion the louse forces under the skin while feeding. The diagnosis is made by seeing the louse or the nits attached to the hairs. On the body, the cleanest treatment is dusting with 10 per cent DDT in talc or by a Benzyl benzoate solution. About the eyes, a 2 per cent ammoniated mercury or 1 per cent yellow oxide of mercury is used.

Warts are a virus infection and are found on practically all of the cutaneous surfaces. The filiform type, which is most common on the eyelids and sides of the neck, is easily destroyed by clipping at the skin surface and lightly touching the base with a cautery. The plantar variety usually responds well to x-rays or radium; this form of treatment does not incapacitate the patient and is relatively painless. Elsewhere, cautery is effective.

Lupus erythematosus may be a chronic, less commonly subacute or acute, inflammatory disease characterized by sharply marginated red or violaceous, various sized plaques, situated on the face much more commonly than elsewhere, and followed by cicatricial atrophy. On the mucous membranes the inside of the cheek is usually attacked. The disease first appears as bright red patches, later becoming violaceous, or bluish white, and depressed areas of atrophy with dilated vessels. On the lips and mouth it appears as scaly depressed patches, shallow erosions, or bluish-white depressed atrophic areas. The lip may be slightly swollen and everted. They have been said to look as though they had been covered with collodion and were about to peel.

On the eyelids, the disease appears much as it does on other parts of the skin. On the margins of the lids, the disease superficially resembles blepharitis but the following conditions differentiate lupus erythematosus. The lid margins are dry, not moist, and covered with finely adherent scales. The color is *not* as red and inflammatory appearing as in blepharitis. It may be violaceous. There is no matting of the lids and the cilia may be partially or completely absent. Later the cilia are permanently destroyed, the margins become irregular and atrophic, and the color disappears. Ectropion and eversion of the lid margins are uncommon, as the atrophy is not of a contractile nature. On the conjunctiva, the disease is similar to that seen on the skin except no scales are present. The patches are red to violaceous, edematous, sharply marginated and end in atrophy. The atrophy may take the form of circumscribed depressed areas or as lines and streaks. Isolated lesions of the conjunctiva have not been reported; however, this may be due to the fact that it is not recognized rather than to its extreme rarity. The acute form of lupus erythematosus is a serious, frequently fatal, disease of the collagen tissues of the body and may occasionally show no skin manifestations. There appears to be a severe toxemia and the skin manifestations, when present, show a greater polymorphism than seen with the chronic discoid form of the disease. Fever, malaise, joint pains, and nervous disturbances are common clinical findings while leukopenia and albuminuria are the most consistent laboratory findings. Subacute lupus erythematosus lies between and may show all of the signs of the chronic as well as the acute types. The Libman-Sacks syndrome and acute lupus erythematosus are probably variants of the same disease.

In the acute form of lupus erythematosus, the fundi show marked changes characterized by perivascular hemorrhages, fluffy exudates, and obviously diseased arterioles showing segmentation. These changes occurred in about 40 per cent of one series of cases and occur independently of the hypertension that may develop due to extensive renal damage.

In treating lupus erythematosus, the general health of the patient should be supported and foci of infection should be eradicated. In the acute types, treatment should be of a supportive nature and no active therapy begun until the disease subsides. For the chronic forms, treatment with gold or bismuth salts appears to be beneficial in many cases. The individual lesions on the skin may be destroyed by cryotherapy or cautery. The lupus patient should avoid sunlight, as this not only has a deleterious effect on the acute forms but may cause the chronic type to flare into an acute form of the disease.

Xeroderma pigmentosum is a rare progressive pigmentary and atrophic disease that begins early in childhood. It is due to a congenital hypersusceptibility to ultraviolet light, and several cases in one family are common. Porphyria may be present. There is an early development of senile changes in the skin consisting of lentigines, telangiectasias, keratoses and carcinoma. Photophobia and lacrimation are the early eye symptoms. Later keratitis develops with resulting opacities. Tumors of the lids and cornea also develop. There is no curative treatment. Avoidance of sunlight and the proper treatment of the skin growths as they appear is all that can be offered these patients.

Pemphigus of the eye may occur alone or associated with lesions elsewhere on the skin and mucous membranes. On the eye, the lesions appear as very shallow conjunctival ulcers, usually covered with a tough membrane, and most often seen in the folds. They heal with atrophy and shrinking of the conjunctiva so that eventually the folds become obliterated by scar tissue. The end result is immobility of the globe and cicitricial entropion or even total ankyloblepharon. The cornea is involved indirectly or as the result of trichiasis and becomes vascularized and opaque. On the skin, bullae arise from normal skin on any part of the body. These bullae arise in crops and there may be long periods of comparative freedom. Usually the bullae rupture, leaving a raw, red surface that shows little tendency to heal. As constitutional symptoms increase, the skin lesions tend to decrease so that a patient may die of pemphigus with relatively little to see on the skin. The treatment of pemphigus, on the whole, is very disappointing. Various forms of arsenic therapy have been tried with variable results; sodium naphuride (germanin) has its supporters. General supportive therapy with a high caloric, high vitamin diet and small transfusions at three-day or four-day intervals seem beneficial. If the skin lesions are at all extensive, they are probably best treated as one would a burn of the same severity. The eye complications are also treated more or less symptomatically. If trichiasis results, the lashes should be destroyed, and if symblepharon is extreme, free dissection of the scar tissue and mucous membrane grafts are indicated.

It is well known that opacification of the lens may occur in association with eczema in neurodermatitis of long standing. As a rule, patients with this type of cataract are younger than those suffering from the senile variety, and the history of chronic skin disease is virtually diagnostic of the syndrome. The opacities, as a rule, may be noted in the subcapsular zones of the lens and ultimately progress to the stage of complete opacification. The treatment consists in extraction of the lens and, because of the age of many patients, a linear extraction or Homer-Smith procedure is indicated. The prognosis is favorable. Alleviation or improvement of the skin condition has no appreciable effect upon the ocular lesion.

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COMPRESSION FRACTURES OF THE SPINAL COLUMN

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THE INCREASING complexity of modern life brings about an ever-increasing incidence of accidents, at work, in the home and on the road, and as the violence of these accidents tends to increase, the treatment of fractures comes to occupy more and more of our time. We see many more "broken backs" than we formerly saw. A "broken back" was an especially common injury during the recent war, and the dreadful connotation of the term itself has been dispelled in part by the lessons learned in treating those injuries.

Fractures of the spinal column may be conveniently divided anatomically into three groups: (1) fractures of the transverse and spinous processes which serve for the attachment of muscles (these frequently are over-treated, to the detriment of the patient); (2) fractures of the vertebral bodies, which transmit weight; and (3) fractures of the laminas, articular processes and pedicles which form the neural arch behind.

In the limited time available, I wish to discuss some important aspects of fractures of the vertebral bodies. Such fractures form the majority of those we see in practice. They result from automobile accidents or falls, usually from some height, and they often occur in certain sports, such as tobogganing; they may occur from trivial injury, such as a fall on a rug, or going over a bump in a car, especially in the aged, who usually have some degree of osteoporosis of the spinal column. They occur not infrequently when a weight falls on the patient's back or shoulders.

In all these instances, the injury usually occurs at the junction of a movable with an immovable portion of the spinal column. The most frequent injury is to the twelfth thoracic and first lumbar vertebrae. Often two adjacent vertebrae are crushed, and at times one sees two injured segments, separated by one or more normal vertebrae.

Most fractures are sustained while the spinal column is in flexion. Extension fractures are rather uncommon, but they probably occur more frequently than we supposed in the past. In many cases, complete paraplegia following an injury in which no bony damage can be demonstrated in the roentgenograms recently has been shown to be due to hyperextension injuries with rupture of the anterior longitudinal ligament and then spontaneous reduction.

Depending on the direction the flexion force takes, the injury may be wedging of one or more vertebrae, comminution of a vertebral body or the more serious fracture-dislocation. As the hyperflexion force is applied, the anterior portion of the body of one vertebra gives way and is crushed by the impact of the vertebra next above or below, the articular facets and pedicles acting as the fulcrum for this force. The angle at which the force is applied seems to determine the extent of the comminution. Impaction of the fragments and the muscle spasm incident to the injury tend to fix the deformity. There is a variable amount of damage to the involved intervertebral disks. Fortunately, the strong anterior common ligament usually remains intact, thus enabling the surgeon to reduce the deformity in these fractures by hyperextension with little danger of doing damage.

After a fall or a hyperflexion injury, the patient may get up and walk, or even return to work, with a compression of one or more segments which cannot be demonstrated by physical examination. Usually, however, the patient will complain of fairly well-localized back pain, with or without radiating pains. The most reliable sign is tenderness over the spine of the broken vertebra, accompanied by a variable amount of muscle spasm. Kyphos may be produced in the presence of more severe injuries. Good anteroposterior and lateral roentgenograms of the spinal column should be made in every case of suspected injury to the spinal column.

The fractures of vertebral bodies under discussion are best shown in the lateral views; when the true status is doubtful, oblique views should also be taken if there is any question of damage to the neural arch or articulation. There is not sufficient time for me to dwell upon the manifestations of damage to the spinal cord or the nerve roots. The cord is so well protected by its fluid bed and covering membranes, and it fits

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Read at the annual meeting of the Minnesota State Medical Association, Saint Paul, Minnesota, May 9-11, 1949.

so loosely in its bony canal that it escapes injury in the majority of spinal fractures. It goes without saying, however, that every patient who has a suspected fracture of the spinal column should have a neurologic examination. This need not be elaborate. If the patient can move the arms and legs, if there are no gross sensory disturbances, if the deep reflexes are normal and if there is no disturbance of bladder or bowel function, there probably is no appreciable injury to cord or nerve roots.

Proper treatment of these fractures begins when injury to the spinal column is first suspected. The segments of the trunk above and below the site of injury are powerful levers and can be made to inflict more damage if the patient is improperly handled. Nothing is more important to the eventual well-being of the patient than skillfully administered first-aid treatment.

After diagnostic roentgenograms have been made, and a compression fracture of one or more segments has been found, preparations are made to immobilize the spinal column in a position of hyperextension, with or without reduction of the deformity. Some patients cannot tolerate the hyperextension position for many days after the injury, even when the deformity is minimal in the fractured vertebra. In these patients, paralytic ileus is likely to occur. For this reason, we feel it is best to put the patient to bed for a few days on a curved Bradford frame or simply flat on a hard bed before attempting reduction or immobilization in plaster. Morphine should be used sparingly, if at all. If paralytic ileus occurs, it is actively treated with the application of hot stupes to the abdomen, parenteral administration of prostigmine or pitressin, insertion of a rectal tube, withholding of food and fluids by mouth, and the intravenous administration of fluids. If necessary, the patient can be placed flat in bed on a fracture board until normal intestinal activity is restored. An indwelling catheter may be required during the first few days after injury.

When it is certain that the hyperextension position can be tolerated, then it is safe to proceed with reduction and immobilization. With the patient under the influence of analgesia produced by a substantial hypodermic injection of some agent, or with anesthesia when required, the patient is put in position for postural reduction. Generally, the weight of the body will suffice, but gentle pressure with the hand can be exerted. When the full hyperextended position has been reached, a well-moulded plaster is applied; this must extend in front from the suprasternal notch above to the symphysis pubis below.

Immediately after application of the plaster, the patient is turned frequently to avoid pulmonary congestion and to assist in the prevention of ileus. After twenty-four to forty-eight hours the patient is allowed to be up, and then may be discharged to out-patient care.

These fractures are slow in consolidating; the mistake is commonly made of removing the plaster too soon. In any event it seems safe to say that flexion movement must not be allowed earlier than four months after injury. In the case of the comminuted fractures, it may be necessary to continue plaster immobilization for six months or longer.

Throughout this period of immobilization in a plaster jacket, exercises for the spinal and abdominal muscles are practiced regularly. A good system is to teach the patient a regular schedule of doing these exercises so many minutes out of each hour; they cannot be overemphasized. These exercises maintain the tone of the spinal muscles, and if they are properly done the strength of the supporting musculature should be greater at the end of immobilization than it was prior to fracture. Furthermore, such exercises tend to preserve normal flexibility in the spinal column and help in maintaining the patient's confidence in his recovery.

When a sufficient period of immobilization has elapsed, and roentgenograms show satisfactory bony healing, the plaster jacket is discarded. If the exercises have been faithfully done, it should not be necessary, in the average case, to apply a convalescent brace, such as the Taylor brace. However, these fractures commonly occur in people who work hard with their backs, and in such instances an additional period of strengthening exercises may be necessary. For this purpose, regular gymnasium exercises are best; two or three months may be required for this phase of the treatment.

The problem of these flexion fractures of the spinal column extends beyond their recognition, reduction and immobilization. The average period of incapacity after one of these fractures is from six to twelve months, depending on the severity of the injury and the occupation of the patient. However, there are often residual and persistent complaints which extend beyond this period, and these are due to secondary tissue damage.

In unreduced fractures with a residual kyphos there may be considerable static pain caused by poor alignment and strain on the intervertebral articulations. Nonunion of the fragments, which may not be apparent in roentgenograms, is a frequent cause of pain. The intervertebral disk always suffers a variable amount of damage which may lead to narrowing of the interspace, a reduction in the size of the foramina, and perhaps radiculitis. Late posttraumatic necrosis, so-called Kümmell's disease, may occur. Localized hypertrophic spurring probably occurs in the majority of cases, no matter how well the patient is treated, but this alone generally is not the cause of symptoms. The intraspinous and interspinous ligaments, of course, are always injured at the time of fracture, and this injury is perhaps the greatest single factor in the production of persistent pain. Stresses and strains on these injured ligamentous structures manifest themselves by deep-seated pain and tenderness associated with muscle spasm. This may cause the disability to be protracted over a year or more. Encroachment upon the intervertebral foramina in these crushing fractures at the thoracolumbar junction may produce pain which extends along the ilio-inguinal or iliohypogastric nerves.

In a minority of cases, persistent deformity with static pain, continued relaxation of the sustaining ligaments, or reactive spasm of the muscles which will not yield to conservative treatment, may require a fusion operation. Before this is done, the surgeon must be sure that the pain is well localized, that it is aggravated by exertion and that it is completely relieved by rest or the use of a back support.

Many of these injuries have industrial or insurance ramifications, so that the surgeon often will be called upon to evaluate the disability incurred. As far as compensation is concerned, it must be concluded from the foregoing that the period of active treatment varies from six to twelve months and that, on the average, the patient will not be expected to return to work in less than twelve months. Furthermore, there may be late sequelae requiring treatment that will be declared compensable.

A good general rule is to allow 20 per cent total disability if, on final recovery, there is useful strength and motion up to 75 per cent of normal, with relative freedom from muscle spasm and pain. Thirty-five per cent total disability must be allowed if recovery is adjudged to be up to 50 per cent of normal, and finally, about 65 per cent total disability must be allowed if recovery is adjudged to be 25 per cent of normal. Each case must be judged on its own merits, but these are good general points.

"SOCIALIZED MEDICINE AS I SAW IT"

Excerpts from a recent address by Dr. Ralph J. Gampell

Nine years ago I graduated from medical school and began as an intern in a hospital in Great Britain. Four months ago I began as an intern in a hospital here in the U. S. What happened in those intervening years? The Government health scheme of Great Britain. After coming back from five years of service wiith the Medical Branch of the Royal Air Force, I entered a large general practice in an industrial area in Great Britain and that, of course, is the clue as to why I am here. I have worked under this British Government Health Service and found it so objectionable, both personally and as a physician, that I felt compelled to break all my ties—and they are real ties—with home annd friends and professional background and come to start afresh —and from the bottom—in a new country. You see there are some things that are not worth doing at any price and working that sort of government medicine seemed to me so intolerable that I made this momentous personal decision. And I am not alone in making this break. You won't see many of my British colleagues here in the U. S. because the problem of obtaining dollars is almost an insurmountable one for Englishmen. But they are streaming out of Great Britain to the British Dominions. This is hardly the action of men who are happy in the practice of their chosen profession. Believe me, one does not make such a decision readily.

Over here you have been led to believe that the vast majority of British doctors are in favor of this scheme. The figure has been quoted to you that considerably over 90 per cent of them have already joined. The presumption, of course, is that they joined willingly. Nothing can be further from the truth. Let me use my own case as an example. Before the introduction of governmental medicine in July, 1948, England had a system which is little known here in the U. S. When a doctor wished to settle in some area, it was not the usual custom for him to just hang up a shingle. In the normal course of events, he would succeed to the practice of a doctor who had died, or more often, a doctor who had retired, and for the succession he would pay a purchase price usually calculated at 1½ times the annual gross taking of the practice though in particularly favorable areas this could go up to 1¾ or even twice the annual gross. Now these are not small sums of money.

In the practice to which I went—not an especially large one—the annual gross was approximately $8,000. Therefore, it cost me $12,000. Now as you can imagine,

(Continued on Page 162)

TREATMENT OF DEAFNESS WITH HISTAMINE

G. L. LOOMIS, M.D.
Winona, Minnesota

A PUBLICATION by Hallberg and Horton[1] on the treatment of sudden nerve deafness by intravenous administration of histamine has prompted the writer to attempt a review of sixteen similar cases that he has seen in routine office practice. At the time these cases were treated, no thought was given to the possibility of the review; hence some of these case reports may seem incomplete. However, certain knowledge has been gained from the observation of this group of nerve deafness cases which may help evaluate future patients.

The age group varied from thirty to sixty-seven years. The onset varied from a few days to six months or longer. Not all the patients had pure nerve deafness. After explaining to them that no definite assurance could be given regarding the outcome, I treated eleven patients with nerve deafness, two with conductive deafness, and three with mixed deafness. No otosclerosis cases were included in the survey. Horton[3] stated that while no improvement could be expected except in patients who had had a sudden onset of nerve deafness, there might be an improvement shown in those with a conductive deafness but the chance would be very slight. Hallberg[2] stated that sometimes one can tell beforehand if the patient is going to have a good result. Usually sudden deafness in older people is caused by some vascular accident to one ear; however, once in a while it may be caused by sudden edema, and these people are the ones who should benefit from vasodilating drugs such as histamine. One can never tell in advance which has the hemorrhage and which has the edema. Further observation is still necessary. The following cases are reported as showing the most startling results.

Case Reports

Case 1.—B. J., a man, aged forty, came in on May 9, 1946, complaining of a sudden loss of hearing and a buzzing sound in the left ear, which occurred after riding in a car by an open window. An audiogram (Fig. 1) was taken and showed a marked decrease in hearing in the left ear. Intravenous histamine injection was begun on May 10 and continued for three days using Horton's method[4] of 250 c.c. of 1:250,000 dilution, the duration of the injection usually lasting from one and a half to two hours. The patient noticed such a marked improvement that the injection was discontinued and another audiogram was taken on May 14 (Fig. 1), showing the prompt restoration of hearing which occurred. On February 24, 1947, the patient was re-examined and the hearing was found to be still further improved.

Case 2.—Mrs. L. R., aged thirty-six, was first seen November 11, 1946, complaining of a buzzing noise in the right ear along with a sudden loss of hearing. Examination revealed no disease, but an audiogram (Fig. 2) showed the hearing very markedly reduced in the right ear and normal in the left ear. She was started on histamine intravenously in the same manner as in Case 1. Injections were given on November 12, 13, 14, and 15. An audiogram (Fig. 2) taken November 20 showed the hearing had improved from total loss for speech to only 3.4 per cent loss. The patient has had no more complaints referrable to this condition, and an audiogram taken recently (Fig. 2) shows her hearing the same.

Case 3.—Mr. B. P., aged thirty, was first seen on January 27, 1947, with a history of a buzzing noise in the left ear with sudden loss of hearing. An audiogram taken on this date showed considerable loss of hearing for high tones, with the left ear down in the 60 decibel level for 2896, 4096 and 5792. Intravenous histamine injection was begun on January 28 and given for four consecutive days. An audiogram taken on February 10 showed the patient much improved with the hearing loss for the same three tone levels at 20 decibels. Another hearing test taken on February 10, 1947, showed essentially the same results (Fig. 3).

Case 4.—Mrs. L. S., aged sixty-seven, was first seen on September 2, 1947, complaining of ringing in both ears and sudden loss of hearing in the right ear. She had been wearing a hearing aid for some time. An audiogram showed a marked reduction in hearing on the right ear and a still greater deafness of a very long standing on the left ear (Fig. 4). Intravenous histamine was begun on September 3, and given on four consecutive days, at which time she noticed some improvement. Three months later, having seen two otolaryngologists in Saint Paul, Minnesota, who recommended further treatment, we gave her another course of histamine therapy consisting of eleven consecutive injections. In addition she followed this at home with nicotinic acid, both orally and parenterally. Numerous audiograms were taken shortly after the last injection, and they all showed considerable improvement. The latest (Fig. 4), taken one year after the first treatment, showed the hearing to be very nearly normal for a woman of her age. She has discarded her hearing aid and has an entirely new personality and outlook on life.

Read in part at the December, 1948, meeting of the Minnesota Academy of Ophthalmology and Otolaryngology.

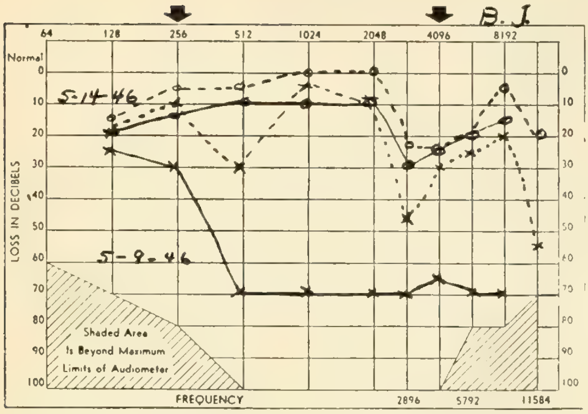


Fig. 1

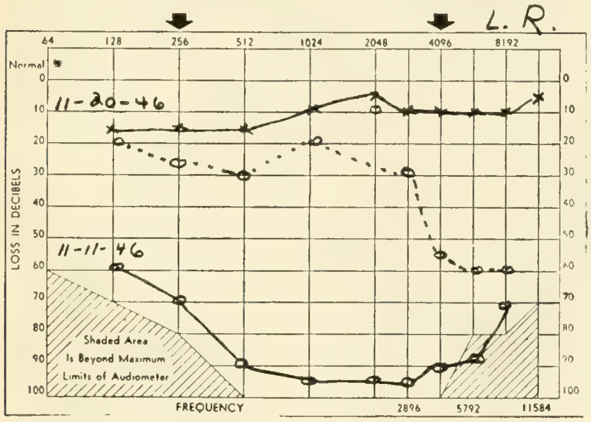


Fig. 2

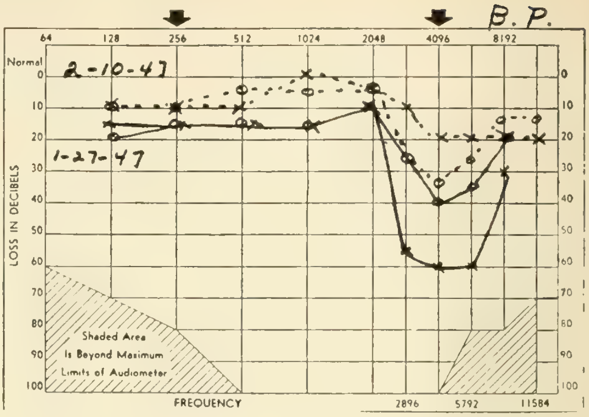


Fig. 3

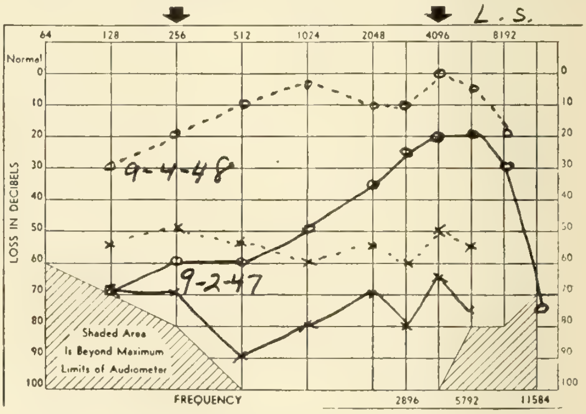
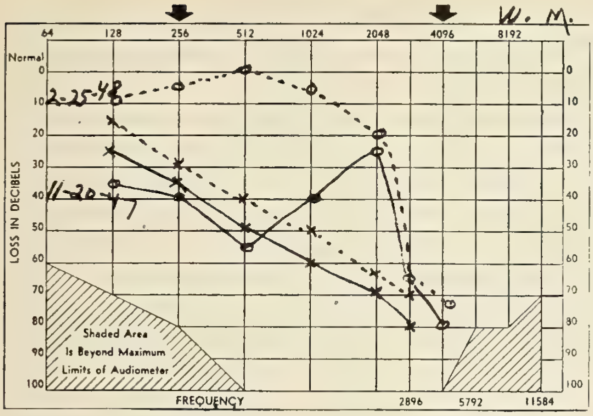


Fig. 4

Case 5.—Mr. W. M., aged sixty-seven, was first seen on November 20, 1947, complaining of sudden loss of hearing in the right ear of two days' duration. He also stated that his left ear had had very poor hearing for twenty years. An audiogram (Fig. 5) taken November 20 showed very marked hearing loss in the right ear and considerable loss in the left ear. Histamine injections were begun the same day and repeated on the following three days. He supplemented this treatment with nicotinic acid orally and parenterally. His next audiogram was taken on February 25, 1948, showing the hearing not only improved in the right ear but also registering some improvement in the left ear which had been regarded as totally deaf for the past twenty years.

Case 6.—Mr. E. V., aged forty-eight, was first seen January 7, 1949, complaining of poor hearing in both ears for twenty years, especially the last few weeks. Examination showed a right chronic otitis media nonsuppurative, and a left chronic otitis media mucopurulent. His hearing was reduced to a whispered voice 6 inches right, 2 inches left, spoken voice 3 feet right, 2 feet left, increased bone conduction and a bilateral negative Rinné. He was given nicotinic acid, 50 mg. tablets three times a day. An audiogram taken on January 7, 1949, showed the hearing loss to be 32.5 per cent right, 56.4 per cent left. He returned January 31 and said he could hear better, which was borne out by the audiometer reading showing 30.5 per cent right, 22.1 per cent left. He was given intravenous histamine injections four consecutive days as in the other cases. The hearing on February 14 had improved to whispered voice, right 2 feet, left 2 inches, spoken voice right 8 feet, left 6 feet. The Rinné tests were now plus, minus. A later examination on August 4 showed whispered voice 6 feet each ear, spoken voice 10 feet, with audiometer reading giving 19.7 per cent loss right and 9.9 per cent loss left. The patient states that both he and his family are very much aware of his improved hearing (Fig. 6).

Case 7.—Mr. L. K., aged forty-nine, was first seen on February 8, 1949, complaining of a hearing loss for about three days, but further questioning showed that for several years he had known that his hearing was not normal. Examination showed a nerve deafness, hearing whispered voice right 1 foot, left 2 inches poorly; spoken voice right 4 feet, left 2 feet. He was given three intravenous injections of histamine on February 10, 11, and 12 and nicotinic acid, 50 mg. by mouth. An audiogram taken February 15 showed a marked improvement, namely, 30.9 per cent right and 14.8 per cent left. Rinné test showed positive each ear, whispered voice right 1 foot,



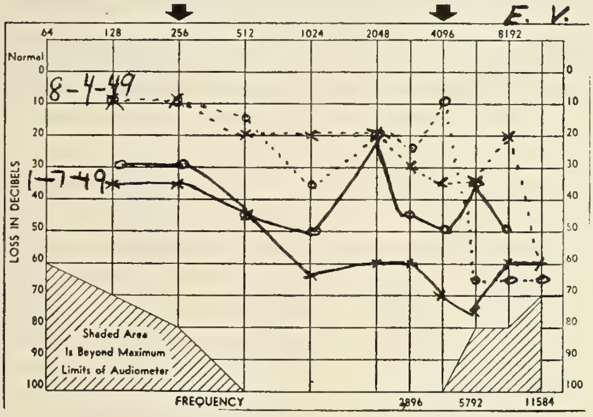
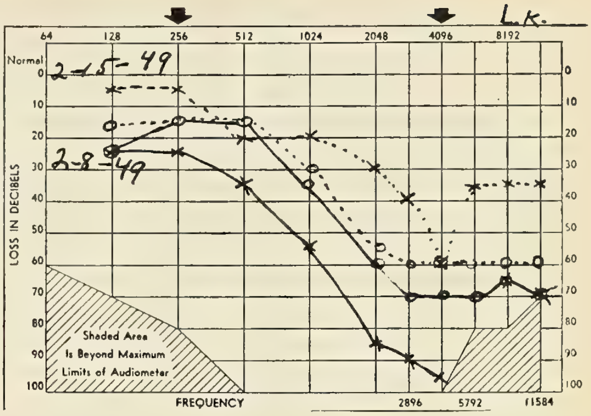


Fig. 5
Fig. 6



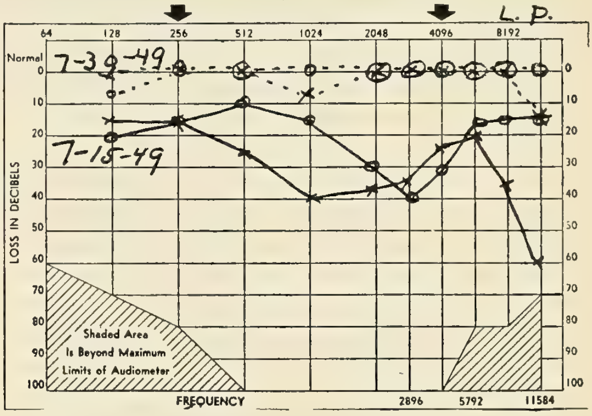


Fig. 7
Fig. 8

left 2 inches, spoken voice right 25 feet, left 25 feet. A recent audiometer reading taken on August 29 showed essentially the same result (Fig. 7).

Case 8.—Mr. L. P., aged thirty-nine, was seen July 15, 1949, complaining of a sudden onset of a buzzing-like tinnitus in the left ear for one day. This was accompanied by a severe attack of vertigo at the same time. There was a slight feeling of nausea but no vomiting. He also stated that he had noticed a lesser buzzing sound off and on for short periods for several years. He used to hear a pulse-like beat but not since the present attack occurred. A comparison of audiograms taken on July 15 and July 30 is interesting, showing a quick return to normal following four histamine injections as in the previous cases. Symptomatically he was improved after two injections (Fig. 8).

To be absolutely impartial, those cases which showed little or no improvement should be included in this report. There were five patients who showed no appreciable increase in hearing. Three of these cases of deafness had resulted from exposure to shell fire while in the military service. It had been explained to all of these that improvement might be questionable. There were three patients who showed a slight improvement. By more careful choosing of these cases and limiting them to those having primarily nerve type deafness, rather than including the conductive deafness, the percentage would look better. However, those of the other group who were improved are happy about the regained hearing and seem better adjusted socially. In addition, nearly all patients noticed an appreciable improvement in their general condition and well-being which was not just a transient change.

An explanation of the rationale of this form of therapy goes beyond the realm of this paper. For an interesting concept on vascular and fluid changes taking place through middle and inner ear dysfunction, reference should be made to an article published by S. H. Mygind[4] of Copenhagen.

Summary and Conclusions

Sixteen cases of deafness are presented as a series of cases to illustrate the relationship between intravenous histamine injections and im-

(*Continued on Page 212*)

TUBERCULOSIS OF THE UTERUS

Report of Three Cases

WILLIAM P. MULVANEY, M.D.
Saint Paul, Minnesota

THE PURPOSE of this paper is to present three cases of uterine tuberculosis, demonstrating the different symptom complexes which existed, and to illustrate the methods of treatment available for this disease.

Tuberculosis limited to the female genital tract is uncommon. It is usually associated with a peritonitis of acid-fast origin.[4] The tubes are most frequently affected, while infection of the uterus and the cervix is more rare. Etiology of genital tuberculosis is generally considered to be by hematogenous dissemination, although conjugal inoculation has been implicated unconvincingly in European literature.[3] The presently prevailing opinion holds that infection is descending and originates outside the genital tract. The low incidence of tuberculous infection of the uterus, even in the presence of tubal infection, may be due to the monthly replacement of the endometrium before invasion by the bacilli can take place. Cases of uterine tuberculosis available for study significantly are associated with oligomenorrhea and amenorrhea. When ovarian function fails, endometrial replacement is inhibited, and tuberculous infection from the tubes is more likely. Menorrhagia may then occur with deeply penetrating endometrial and myometrial lesions.

The diagnosis of genital tuberculosis is usually made by biopsy, curettage, operation or autopsy. Available treatment includes the use of tuberculin, pneumoperitoneum,[6] irradiation, streptomycin and surgery. The first two methods have been given very little clinical trial. Until recently, surgery and irradiation used separately or in conjunction have been considered the best treatment for this disease. The value of surgery is established. X-ray therapy is said to stimulate production of fibroblasts and promote healing. It tends to prevent recurrence and to clear up residual granulation.[2,5]

The usefulness of streptomycin in pelvic tuberculosis awaits evaluation, as very few cases are being reported. It is of known value in aiding healing of tuberculous sinuses and fistulas. It may also be of value in preventing dissemination of tuberculosis after operation. The surgical mortality in toxic tuberculous patients is approximately twice that in nontoxic patients.[7] Streptomycin may prove useful in preparing a patient with genital tuberculosis for operation by reducing the toxemia. Aronson and Dwight[1] have reported an apparent cure of endometrial tuberculosis in a young woman, using streptomycin alone. They gave 1 gram daily for 129 days.

Case 1.—A twenty-eight-year-old Filipino came to the clinic because of vaginal bleeding of ten days' duration and slight suprapubic pain. Periods had been regular, lasting seven days monthly. There had been no pregnancies since the death of her three children during the Japanese occupation. They had died within six months of each other at the ages of four years, two years, and 5 months of "bronchitis." Physical examination limited pathology to the pelvis. The uterus was asymmetrically enlarged to the size of a ten weeks' pregnancy and was firm in consistency. The cervix was eroded and polyps were present. The urine, a hemogram, a Friedman test, and a roentgenogram of the chest showed nothing abnormal. The polyps were removed, the uterus curetted and a cervical biopsy taken. The three specimens contained numerous foci of giant cells, caseation necrosis, epithelioid cells and lymphocytes arranged in tubercle formations. Tubercle bacilli were identified after staining.

The patient refused admission until pain recurred. Pain returned in the left flank, and the urine was loaded with erythrocytes. An intravenous pyelogram located an acutely kinked and dilated ureter and left hydronephrosis. Bed rest alleviated the pain, and the urine cleared. Urine cultures and guinea pig inoculations were negative. Since the curettage there had been three episodes of scant vaginal bleeding lasting four days. Pelvic findings were essentially the same, except for the cervicitis which had become more severe. Observations showed a daily fever of 101°. Repeated sedimentation rates were about 45 mm. The hemogram: red blood cells, 4,100,000; white cells, 6000; polymorphonuclear cells, 57; lymphocytes, 33; eosinophiles, 10; platelets, 170,000. The hematocrit was 36. Blood urea nitrogen and creatinine were normal. A roentgenogram of the chest was unchanged. The stools contained the ova of hookworm and endameba hystolytica, as did those of nearly every patient in the hospital. In the light of past experience, the latter were discounted as contributing much to the patient's toxicity. The patient appeared well nourished and in apparent good health. Search for foci of extragenital tuberculosis was unsuccessful. The urinary tract was suspected but culture of twenty-four-hour urine specimens were negative.

One gram of streptomycin was given daily. After five weeks the temperature had dropped to normal and

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Resident in Urology, Ancker Hospital, Saint Paul, Minnesota. Cases from the 10th General and 20th Station Army Hospitals, Philippine Islands.

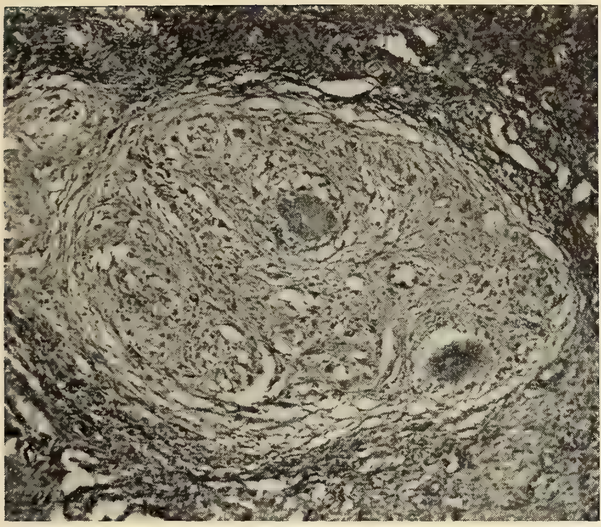

Fig. 1. *Case 1.* Lesion in the myometrium.

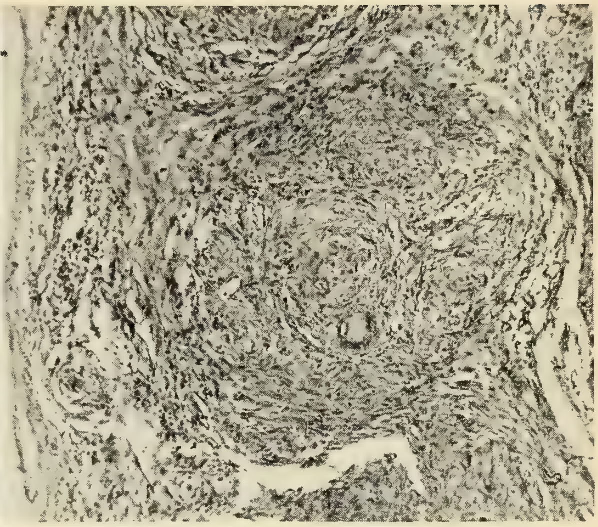

Fig. 2. *Case 1.* Myometrium near serosal surface.

the sedimentation rate leveled at 5 mm. There was a 5-pound weight gain, but the cervicitis and uterine enlargement remained. At laparotomy, a bilateral salpingo-oophorectomy and panhysterectomy was done removing a cuff of thickened vaginal tissue. Several "rice grain" nodules were noted under the serosa of the cecum. The remaining abdominal organs appeared uninvolved. The postoperative course was uneventful and the highest temperature was 99°. Streptomycin was continued. Irradiation therapy facilities were unavailable. Three weeks postoperatively the patient left the hospital against advice of the staff and refused to take streptomycin as an out-patient. She returned in two months with hematuria and left lumbar pain, which again subsided without definitive treatment. Urine inoculations of guinea pigs were reported positive for tuberculosis. The patient refused therapy but was seen four months later. There were no complaints. She looked well and had continued to gain weight.

Examination of the organs excised showed generalized tuberculosis. The uterus contained tubercles in the endometrium and serosa. The myometrium was only slightly involved. Tubercles were present in the muscularis of the cervix, and the submucosa was infiltrated with lymphocytes. The blood vessels of the adnexa were surrounded by tubercles and caseating areas. The tubes bulged with fibrocaseous and fibrocalcific lesions, and the epithelium was almost completely destroyed. The ovaries contained numerous fibrocaseous areas. The process in the uterus seemed to be more productive than that in the tubes and ovaries where there was more necrosis.

Case 2.—A forty-two-year-old American woman in seemingly good health sought treatment for a severe aching lower abdominal pain of three months' duration. The pain had gradually increased and had become disabling. Five years previously she had bled copiously and was curetted. She was told she had fibroids and was too ill for operation. Radium therapy of unknown quantity was given. Thereafter her menses were scant in amount and lasted three days. For the past ten months there had been no bleeding but pain was noted at the time of expected menses.

Past history revealed only that her last illness had been childhood measles. There had been no pregnancies. Complete examination including a roentgenogram of the chest failed to show evidence of disease outside the pelvis. The uterus was symmetrical and the size of a three months' pregnancy. It was resilient but firm. Tubes and ovaries were not considered notable. The cervix was fibrotic and the os stenosed by scar tissue. A probe could not be passed. The diagnosis of cervical stenosis secondary to radium therapy and hematometra was made and laparotomy performed. The uterus was enlarged, and the left tube was fibrosed, firm and partially calcified. The possibility of tuberculosis was suspected and a panhysterectomy and bilateral salpingo-oophorectomy done. Radiation therapy was given along with one gram of streptomycin daily. Healing of the wound was complete, and the patient recovered without incident. Streptomycin therapy was continued for sixty days. The pathologist's diagnosis was tuberculous pyometra and healed tuberculosis of the tubes.

Case 3.—A thirty-six-year-old American woman was examined in an attempt to determine a cause for her sterility. There had been no pregnancy in seven years of marriage. The patient's past history was not remarkable except for a "pneumonia" at the age of twenty-three with hospitalization for three weeks. She had been examined and given roentgenograms of the chest at yearly intervals since then without evidence of disease. Menarche was at thirteen. Periods lasted five days and arrived at regular twenty-nine-day intervels. For the past six years, however, the menses had become shorter and scantier. There was slight primary dysmenorrhea. Physical examination and endocrine survey gave no hint as to the trouble. Pelvic examination showed nothing of note. The husband was given a urological survey and was found not to be at fault. An endometrial biopsy was taken to determine the presence of ovulation. Tuberculous endometritis was found upon microscopic examination. No other tuberculous process could be found, nor was the patient toxic. A panhysterectomy was done and both tubes and ovaries removed. X-ray therapy was given. Streptomycin was not available. Two years later, the patient had remained asymptomatic.

The pathologist's diagnosis was tuberculous endometritis and healed, calcified tuberculous salpingitis.

Comment

Radical operations were done in each case. X-ray therapy was used as a postoperative adjunct to treatment when possible. Streptomycin was used in two cases. In the first patient toxicity was reduced by streptomycin therapy, enabling the patient to undergo operation at a reduced risk.

The three patients recovered from their operations promptly and without complication. Wound healing was complete and without sinus formation.

Further clinical trial of streptomycin treatment of genital tuberculosis may be warranted when the patient is young and a salvage of the reproductive capacity is indicated. However, since tuberculous endometritis is seldom unaccompanied by tuberculous salpingitis, it is doubtful if fertility can be restored.

When tuberculosis is limited to the genital organs by careful clinical investigation, radical surgery offers the patient the best chance for a cure. It has the advantage of eliminating diseased organs from an otherwise normal body. This principle has been used with success in other fields of surgery for tuberculosis. Streptomycin and X-ray therapy constitute valuable adjuncts to treatment.

Summary

The etiology and diagnosis of uterine tuberculosis are briefly mentioned and the available methods of treatment outlined. Three illustrative cases are reported which were treated by operation aided by streptomycin and x-ray when available. No operative or postoperative complications were encountered. Surgical removal of the diseased organs in an otherwise normal patient is the treatment of choice. X-ray and streptomycin therapy are valuable adjuncts to surgery.

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"SOCIALIZED MEDICINE AS I SAW IT"

(Continued from Page 156)

after serving five years with the RAF I had no $12,000, I borrowed the purchase price from the bank. The coming of the National Health Service Act—a vast system of government medicine—made this long-established practice of buying and selling illegal. But it should be said in fairness that the doctors were not to be robbed of their practice value. A sum of some 264 million dollars was appropriated as compensation. Provided, and this is the vital proviso, provided that the doctor claiming compensation had entered the nationalized medical scheme on or before July 5, 1948, he would be reimbursed. It will be clear to you that in my personal case I stood to lose no less than $12,000—not even my own at that—should the scheme come into operation on the appointed day and my head not be there to be counted. And that story applies to almost every doctor in Great Britain. As the government claims, the doctors in Britain are 99 44/100 per cent pure.

As a general practitioner, I had registered with me, because of course in socialized medicine, we must have registrations; I had registered with me some 3,200 souls and this, believe it or not, was not the maximum. I could have had 4,000 and even more in certain exceptional circumstances. I challenge any of you listening to me to have even a conception of what is entailed in being responsible for the health of that number of people.

In America there is one doctor for substantially less than a thousand persons. I used to do three one-hour office periods each day. And I could expect twenty people and more in one of these periods; that is an average of three minutes per patient. And I have made as many as thirty-six house calls in one working day in addition to my work in the office. You will, I am sure, appreciate what sort of medicine this is.

It is just what you would have expected. The illusion of "all for free" has taken firm hold and the national hypochondriasis has reached truly alarming proportions. The doctors' offices are crowded to overflowing and the urgent sick are forced to wait their turn while the doctor's time is devoted to the mass of unnecessary demand on his professional skill. This impossible strain has meant inevitably that any case requiring more than the barest minimum of attention has to be got rid of as quickly as possible and this is done by referring the unfortunate patient to the nearest hospital, not because of any necessity for hospital facilities, but because what is needed is that thing which is in the shortest supply—the doctor's time.

The government's original estimate for the first year's operation was that they would need all the sum realized by the payroll withholding tax as well as an extra 520 million dollars from the general appropriation. At the end of the first nine months, however, an extra appropriation of some 230 million dollars was needed to prime the pump—an elegant commentary on the accuracy of the political planners. And, of course, this "free for all" assembly-line medicine requires an ever-increasing, snowballing expenditure. As long as he is in possession of the right form, there is virtually nothing that the energetic patient cannot obtain—drugs, dentures, toupees, surgical corsets, elastic hose, spectacles, hearing aids, all to be had for the asking, and how they do ask. Before I left England I could regard myself

(Continued on Page 185)

CLINICAL-PATHOLOGICAL CONFERENCE

DIAGNOSTIC CASE STUDY

ARTHUR H. WELLS, M.D., HAROLD H. JOFFE, M.D. and THOMAS MOE, M.D.
Duluth, Minnesota

DR. J. E. EGDAHL: This fifty-three-year-old white lumberjack (Case A. 4516) had apparently been in good health until eight days before his death, when he developed gradually increasing nausea, vomiting and marked weakness. After two days of illness he was hospitalized with disorientation, restlessness, weakness and slight jaundice. His temperature was normal or subnormal. His white blood cell count was 7,500 with a normal distribution of the white blood cells. He was given penicillin and 10 per cent dextrose in saline. There was some tenderness over the liver area but no enlargement of the liver. The jaundice rapidly increased in severity and his disorientation progressed into a stupor and after forty-eight hours in the hospital he passed into coma. His eyes were open most of the time and there appeared to be a loss of the blinking reflex. There was frequent yawning and he appeared to be regaining consciousness much of the time until the last twenty-four hours. At no time did the physical examination reveal any additional evidence of an explanation for this rapid progression of a disease process. His pulse was good. The highest pulse rate was 116 per minute. There were no cardiac murmurs. The lungs were clear and the abdomen was relaxed and not distended. He expired on the sixth hospital day and the eighth day of apparent illness without regaining consciousness. There was no response to the antibiotic therapy and only a terminal rise of his temperature above normal.

The past history revealed that the patient had injured his forearm in a saw two months preceding the apparent onset of his present illness. The extensive laceration extended down to the radius and ulna, severing practically all the tendons on the palmar aspect of the forearm. The wound was cleaned and closed at another small hospital. Penicillin, tetanus antiserum, and a unit of "Red Cross Plasma" were given. He was released from the hospital as improved after ten days. The wound healed after approximately one month. There was no return of sensations or ability to flex the fingers or hand.

Additional history revealed the continuous use of alcohol in excess over a long period of years.

DR. A. H. WELLS: The case is now open for diagnoses.

Physicians: Infectious hepatitis, acute catarrhal jaundice, acute homologous serum hepatitis, acute yellow atrophy of the liver, cancer of the pancreas or biliary tract.

DR. A. H. WELLS: What were the features which led you to the proper diagnosis, Dr. Urberg?

DR. S. E. URBERG: Sixty days after having received pooled plasma this man developed a rapidly increasing jaundice, disorientation and weakness progressing to coma and death within a very short period of time. The diagnosis is homologous serum hepatitis until proved otherwise.

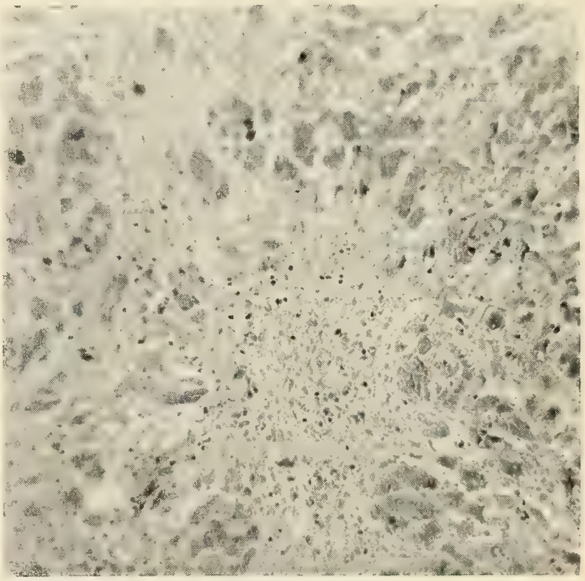

Fig. 1. Phosphotungstic acid and hemotoxylin stain revealing cellular debris and absorption in central zone, extreme liver cell degenerative changes and inspissated bile in canaliculi.

Necropsy

The postmortem examination of this fifty-three-year-old well nourished, embalmed, white male was essentially negative except for the fatal acute hepatitis and associated toxic changes in no other organs. The 820 gram liver was uniformly shrunken to approximately 50 per cent its usual size. There was a dirty grayish green color of outer and cut surfaces with accentuation of the contracted architectural markings.

Histologically two-thirds of the liver cells were represented by granular cellular debris located primarily in central zone areas. The remainder of the parenchymal cells were pale, swollen and had ill-defined nuclei and cell walls. These possibly viable cells were arranged in small groups and located in the periphery of liver lobules (Fig. 1). Bits of inspissated bile was found

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in canaliculi and in the cellular debris. There was a moderately severe patchy neutrophilic infiltration of irregular distribution.

Toxic changes of mild grade were demonstrated in the myocardium, spleen and kidneys. There were no cerebral lesions.

Nomenclature Orientation

There is no general agreement on terminology.[24,28,29] It seems likely that the terms acute catarrhal jaundice and epidemic catarrhal jaundice will disappear from the medical literature to be replaced by such terms as infectious hepatitis, homologous serum hepatitis or virus I.H. hepatitis and virus S.H. hepatitis. The term acute yellow atrophy may also eventually suffer the same fate of oblivion or be used simply to designate an extensive necrosis of liver of unknown etiology. Hepatitis resulting from chemicals such as cinchophen, carbon tetrachloride, chloroform, mushroom toxin, phosphorous, arsenic compounds or caused by known bacteria should be specifically designated as to cause.

Virus Hepatitis

Since there are no known susceptible lower animals or satisfactory culture media for the virus involved in virus hepatitis our knowledge is based upon clinical observations and experimental work with inoculated human beings.[16] The present consensus is that the disease can be divided into two types, each of which will produce a permanent immunity against itself but apparently not against the other. One is a natural occurring disease in either sporadic or epidemic forms and is termed "infectious hepatitis." The other "homologous serum hepatitis" is propagated by mistakes in which the contaminated serum or blood of a carrier or diseased person is introduced into a susceptible individual by the use of contaminated needles, blood and serum transfusions, vaccines, arsphenamine injections and even by simple accident with a hypodermic syringe.[13]

Infectious hepatitis is the fairly common and widespread condition formerly known as acute catarrhal jaundice. It is a disease primarily spread by fecal contamination of food and drink. Since the virus occurs normally in the blood stream, transmission by transfusion is also frequent. In the Mediterranean area alone it caused tens-of-thousands of cases of hepatitis in the United States Army troups, involving as many as 50 per cent of a single command.[7] In spite of the low mortality of approximately 0.2 per cent it was one of the principal medical causes of death among our troups and the greatest cause of disability.

Prior to World War II, homologous serum hepatitis was little understood by physicians of this country. The potential danger of any transfusion has been more recently emphasized.[2,3,9,19,21] The incidence is as high as 11 in 2,443 transfusions of blood and serum[19] or 29 times in 649 patients receiving dried pooled plasma.[2] In a general hospital among 936 transfused patients there were 20 who developed "possible hepatitis" and 12 with "probable hepatitis."[15] The disease is an important problem in the conduct of a blood bank.[15,19] Although the morbidity of homologous serum hepatitis is approximately that of infectious hepatitis, its mortality has been found to vary from 0.2 per cent to as high as 41 per cent[12] in smaller group studies.

One of the principal differences in the two forms of virus hepatitis is the 18 to 40 days incubation period for infectious hepatitis and 60 to 120 days for serum hepatitis.[17] Dilution, prolonged freezing and dehydration apparently do not decrease infectability. Alcoholism, serious injuries and malnutrition[23] accentuate the diseases. Ultraviolet radiation of the serum,[1,28] gamma globulin prophylactic therapy[24] and immunization by previous infection protect against the diseases.[25]

Pathology

The entire histogenesis of virus hepatitis[3,5,10,20,22,29] has been revealed by numerous liver biopsies and postmortem studies. There appears to be no essential difference in the two types. Early and mild changes consist of monocytic, neutrophilic and eosinophilic infiltration of periportal areas, swelling and pallor of liver cells particularly in the central zone. Progression of the disease results in necrosis of parenchymal cells, first in the central zone and if severe, large groups of liver lobules may be destroyed leaving the stroma untouched. In this stage there may be inspissated bile in the canaliculi but not in bile ducts. There is a rapid absorption of necrotic tissue. Healing generally results in a complete replacement of liver lobules by regeneration of the remaining liver cells.[14] Several authorities[5,10,11,20,26] have observed progression of the process into a form of cirrhosis of the liver. The latter may be similar to or identical with the so-called "toxic cirrhosis" of Mallory in which there are large areas of stromal elements representing the skeletons of many liver lobules and not an accumulation of scar tissue.

Concurrent lesions in other organs have been described such as, meningoencephalitis, acute regional lymphnode inflammation, orchitis, acute splenitis, myocarditis and interstitial pneumonitis.[21,29]

Clinical Manifestations

The different outbreaks of virus hepatitis reveal a close clinical interrelationship of the diseases of the two or more icterogenic agents. A history of other cases of the disease in the family or neighborhood or recent hypodermic injections may be useful. Following the variably long incubation periods there is described[58] a prodromal or preicteric stage with tender liver enlargement, hyperbilirubinemia, bilirubinuria and leukopenia. The acute stage is frequently precipitus in the onset of its characteristic signs and symptoms. In one large series[8] the frequency of observation of signs and symptoms were as follows. malaise 100 per cent, nausea and vomiting 100 per cent, anorexia 100 per cent, dark urine 100 per cent, abdominal discomfort 95 per cent, jaundice 78 per cent, light stools 71 per cent, fever 64 per cent, palpable liver 57 per cent, constipation 57 per cent, generalized aches and pains 35 per cent, pruritus 7 per cent, rash 7 per cent and diarrhea 7 per cent. Lassitude, chilly sensations, bloating, arthralgia, and myalgia are nearly always present. The clinical picture frequently does not reflect the severity of liver damage in the acute phase. The temperature is generally elevated in infectious hepatitis but is frequently normal in homologous serum disease. After continuous persistence or apparent recurrence for from four to six months the disease is generally considered chronic. Ease of fatigue, mental depression and aching, soreness, fullness, heaviness or pain over the liver are the usual chronic manifestations. Rarely the development of cirrohisis and its clinical signs are described as sequelae.

Laboratory studies may reveal a normal total white blood cell count with a mild lymphocytosis. The icterus index is generally elevated at some time during the disease, however isolated total serum bilirubin tests revealed high levels in only 83.8 per cent of 93 cases.[12] The cephalin flocculation, cholesterol esters, galactose tolerance and the bromsulphalein excretion (with normal serum bilirubin) have all been found to be of aid in identifying diffuse liver cell injury and were helpful in following the progress of the disease.[3,12,18,21] Punch biopsy of the liver is by far the most accurate diagnostic aid.

The diseases to consider in a differential study are: the causes of mechanical obstruction of the common duct, virus pneumonia, infectious mononucleosis, acute brucellosis, amebiasis, malaria and the chemical hepatotoxins mentioned above.

Treatment

To date no antibiotic has been reported as specific for virus hepatitis. Gamma globulin has been found protective if used prophylactically.[24] Adequate rest has been stressed by all authorities.[16] One interpretation of this is complete bed rest until the serum bilirubin falls to 1.0 mgs. per 100 c.c. or until jaundice has cleared.[12] Graduated activities may be permitted with disappearance of liver tenderness and a return of liver function tests to normal. With a recurrence of these signs complete bed rest must be reinstituted because of the possibilities of serious injury to the liver.

A nutritious diet with high carbohydrate and protein and a low fat content is advised.[8] Methiomine and vitamins are advised. Liver toxins including alcohol are contraindicated.

Summary

A fifty-three-year-old chronic alcoholic developed homologous serum hepatitis and expired sixty-eight days after receiving pooled plasma. The necropsy findings and an incomplete literature review of virus hepatitis are given.

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The early diagnosis of tubercle remains one of the major problems of general practice. The standard of what constitutes early diagnosis has been considerably altered. In the days before the general use of chest radiography one had to depend upon the finding of abnormal physical signs in the chest or on the presence of the bacilli in the sputum—a stage nowadays considered too late. In theory, of course, early diagnosis is quite easy. The chest is x-rayed and the problem is solved. But in actual practice things can work out very differently. The early signs are so slight, so varied, so indeterminate, that unless a doctor is tubercle-conscious an x-ray may not be called for and precious time is wasted. —R. J. Perring, M.D., *Lancet,* December, 1949.

History of Medicine In Minnesota

MEDICINE AND ITS PRACTITIONERS IN OLMSTED COUNTY PRIOR TO 1900

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(Continued from the January issue)

It is remembered by some of the early junior physicians, who long have been senior members of the permanent staff, that they came, as they recall their viewpoint, "to work with the Drs. Mayo"; they did not think of the firm and its facilities as a clinic. It has been noted in newspapers of that period that when a new worker, physician or not, joined the group, he "entered the employ of the Drs. Mayo." As late as 1912, when a reception was given for Sir Bertrand Dawson, of England, it was held at the "Mayo Library."

It was in 1912, when the staff included a growing group of junior physicians and surgeons, that it seemed proper to choose a suitable and dignified title for them, and Dr. E. H. Beckman, it was said, suggested "fellows." "Fellows of Mayo, Graham, Plummer and Judd" was unthinkable, "Fellows of St. Mary's Hospital Mayo Clinic," was unwieldy, and a second suggestion, "Fellows of the Mayo Clinic," was adopted. This decision, it is believed, inaugurated the use of the name "Mayo Clinic" by the group concerned, although, informally and among themselves, the staff earlier had begun to speak of "the clinic."

In 1912, also, when the offices had become congested and to some extent decentralized, it was decided that an adequate new building, designed for clinical work, must be erected, and on October 12, 1912, the cornerstone was laid. As the *Democrat* announced, it was the intention of the firm of Drs. Mayo, Graham, Plummer and Judd (Dr. Stinchfield retired from active practice in 1906) to build a large structure, to cost $100,000, for their clinical and diagnostic offices. The building was constructed on the site of Dr. W. W. Mayo's first Rochester home, which had been built in 1863. Although the Mayos and their associates, their offices and their work long had constituted a clinic, it was not until the new building was opened on March 6, 1914, housing under one roof all clinical facilities, including extensive laboratories, that the Mayo Clinic emerged into public recognition as such. In 1914, for the first time, the firm used "Mayo Clinic" on their letterheads, above "Drs. Mayo, Graham, Plummer and Judd," and then only after hesitation on the part of the Drs. Mayo, lest the title should seem ostentatious.

On October 8, 1919, when Dr. W. J. Mayo and Dr. C. H. Mayo founded the Mayo Properties Association (beginning in 1947, Mayo Association), they said, in reviewing the history of the clinic and its name. ". . . . the donors and their associates have adopted, as their copartnership name, the name which has thus been bestowed upon them." A few years later the copartnership for medical practice became a co-operative association for medical practice.

Even as the private practice was becoming a private group practice, better care of the sick and better education of physicians, in science and the humanities, became to Dr. William J. Mayo and his brother a motivating purpose. The achievement of the Drs. Mayo and their associates in care of the sick and in medical education has been and is a work of continuing growth and evolution.

Conditions of Practice at the Close of the Century

The advances in the art and science of medicine and surgery that were made in the last twenty years of the nineteenth century have been reviewed often by able historians. In Olmsted County, in that period, remarkable progress was made by private practitioners in the acquisition and application of the new knowledge. The county program of public health and public welfare was improved continuously and was carried out in co-operation with the Minnesota State Board of Health and Vital Statistics, of which at various times some representative physician of the county was a member. The physicians of Olmsted County maintained fraternal accord with one another and with their confreres elsewhere. By the close of the century annoyance by unethical and irregular practitioners of medicine had become minimal. The Olmsted County Medical Society, which long had been functioning actively, was in excellent standing as part of the Minnesota State Medical Society, and it had creditable representation in the American Medical Association.

Biographical Sketches*

It is evident that in the evolution of medical practice in Olmsted County the influences that combat prejudice and make for liberalism and progress steadily gained in strength. Most members of the regular profession remained faithful to the tenets of their school. Many homeopaths ultimately embraced the regular school, as did many eclectic practitioners. All had their part in bringing about improvement. There were practitioners, of all types, who changed occupation for reason of loss of health or of greater interest or profit in other occupations. Others, because of lack of means or inclination to meet improving professional standards, as stringency of medical legislation increased, dropped out of the profession.

There follows what may seem to be an undue amount of biographical material. It is given, especially about some of the earliest physicians and about some who were longest resident in the county, because, as an outstanding historian has said, the personal element in biography makes for appreciation of truth. Notes are given here on all physicians of established schools in the county about whom information has been obtainable. Considerable detail is used, for such value as the record may have in the history of medicine in the state, regarding practitioners who, although they were in Olmsted County only a short time, at some period practiced elsewhere in Minnesota. Sketches appear of a few practitioners of the county who were not recognized physicans, for example, magnetic healers, cancer doctors, herb doctors, and so forth; in these, care has been taken to state plainly the avowed methods of practice. These practitioners are included with representatives of established schools because they were a well-known part of the medical scene and contributed to medical history of the county.

Arthur Strong Adams, a graduate physician and surgeon aged thirty-five years, arrived in Rochester, Minnesota, from Cleveland, Ohio, on March 18, 1885, accompanied by his wife, Emma J. Ford Adams, to whom he had been married in Cleveland two days previously.

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*Although this article deals essentially with the years before 1900, the biographical sketches, whenever possible, cover the lifetimes of the subjects. When inquiry has been infeasible, or when it has not met with response, a résumé of data, believed to be authentic, has been used.

Grateful acknowledgment is made here to the innumerable persons—relatives, friends and patients of the early physicians; editors, writers, librarians, physicians, county officers and other workers—who have given generous help, and to many others who have expressed encouraging interest in the compilation of the record.

A son of William H. Adams and Octa B. Strong Adams, pioneer settlers of Ohio, Arthur Strong Adams was born in Sheffield, Lorain County, Ohio, on February 10, 1850. A few years later the family moved to Delaware County, Ohio, where Arthur Adams received his academic education in the public schools and at Ohio Wesleyan University. He next read medicine with an established practitioner, and in 1876 (sometimes given 1875) was graduated with the degree of doctor of medicine from the medical department of Wooster University.[†] He entered practice in Cleveland, and during two of the ensuing nine years was assistant physician on the city board of health.

Dr. Adams came to Olmsted County with two declared purposes: to regain his health and to specialize in major surgery. He early recovered his health. In the thirty-four years of his residence in Rochester his professional work, however, was mainly general practice, with emphasis on nervous and mental diseases and for a time on public health work.

On June 30, 1885, Dr. Adams received Minnesota state medical license No. 1074 (R). His first professional card, in 1885, stated he specialized in mechanical surgery and that he was an expert in the use of electricity. The press added that Dr. Adams already was treating several chronic cases of catarrh with electricity and that if he could cure catarrh by that treatment he had struck a bonanza. Dr. Adams' acquaintances have said that he "was always dabbling with electricity, electrodes, therapeutic appliances." He gave galvanic treatment for prostatic disease; to the class in physics of the high school, in 1893, he demonstrated the operation of electric motors and of the Brush electric light, the kind then in use in the city. He is remembered as an inventor of many mechanical devices, among which were a vacuum pump, and a cane that doubled as a medicine case. The cane separated into two main parts, the outer portion serving as the sheath of the inner section, which was fitted throughout its length with a tin trough in which rested medicine bottles; they rested none too securely, for occasionally when the cane was pulled apart, they all fell out.

During his years in Rochester, Dr. Adams occupied several different offices, first over Hargesheimer's Drug store, and from 1894 to 1903, ground floor rooms in the Brackenridge Building, in order to save his numerous rheumatic patients the inconvenience of climbing stairs. For the next three years he occupied a small detached frame building of considerable historical interest, it having been the original home, in 1864, of the First National Bank of Rochester. In Dr. Adams' time this building, which had a high false front and a front porch with supporting pillars of the southern colonial type, stood well back from the sidewalk on Zumbro Street, on part of the site of the present Martin Hotel. After 1906 the doctor had space upstairs in the Ramsey Building.

When Dr. Adams first came to Rochester, it is said, he began to practice without first observing the convention of introducing himself to physicians already established, an oversight that brought him the criticism of older practitioners. If at first careless of professional amenities, he was punctilious otherwise. He was a Mason, a Republican, an ardent prohibitionist. He became a supporter of the Young Men's Christian Association, a member of the Minnesota State Historical Society, and of the local Six O'Clock Club.

[†] In 1881 the majority of the medical faculty of Wooster University joined with the faculty of the Cleveland Medical College, which since 1843 had been the medical department of Western Reserve University. Within a year the name of the school was made "The Medical Department of Adelbert College of Western Reserve University." In 1822 the board of trustees of Western Reserve University conferred the ad eundem degree of doctor of medicine upon all graduates of the Cleveland Medical College and upon such graduates of the Wooster Medical Department prior to 1881 as desired it.

He was a prominent member of the Methodist Church, its Sunday School, Christian Endeavor and Sunnyside Club, attended church conferences, and occasionally occupied the pulpit in Rochester and in villages of the county.

As he became known in the district, his country practice grew heavy, especially in Kalmar Township, and in June, 1891, news items from Byron stated that Dr. Adams had fitted up an office in the J. B. Kendall house and would be found there Monday of each week. Tall, stout, heavy-jowled and florid, his brown hair parted low on the left, his mustache long and twirled at the ends, he became a familiar figure, and though he was quick-tempered and emotional, he was in general a kindly, friendly man who was well liked. In the early years he drove a horse to a light gig. When automobiles came, he had a Carter, a machine that was unpredictable under stress, the doctor's acquaintances have said, as its owner; when a car or a horse could not or would not go, Dr. Adams might resort to oaths and blows, but he was quite as likely to kneel and pray.

By the early nineties Dr. Adams had begun to figure in medical organizations and was attending meetings of neighboring county societies in company with Rochester physicians, among them Dr. A. F. Kilbourne and Dr. W. J. Mayo. He had by then become a member of the Olmsted County Medical Society, of which he was president in 1892. His name was on-the roster of the Minnesota State Medical Society and of the American Medical Association. In July, 1892, he was a charter member of the Southern Minnesota Medical Association, its vice president in 1893-1894, its president in 1901-1902. Records show that he presented numerous papers before local medical groups on many subjects, including rheumatism, cirrhosis, concussion of the brain, influence of the nervous system on disease, diagnosis of spinal diseases, and on the therapeutic uses of electricity.

He was preceptor to at least one medical student, a young man of merit, Patrick H. Manion, member of a well-known family of Eyota, who read with Dr. Adams from March to September, 1887. At the end of that time Mr. Manion entered Rush Medical College, from which he was graduated in 1890.

Dr. Adams was county coroner for two years from the autumn of 1894, and was intermittently county physician for the district comprising the city of Rochester and the townships of Marion, Rochester, Cascade and Haverhill.

In 1897 Dr. Adams was appointed city health officer of Rochester, a capacity in which he served for nearly fifteen years, with the exception of a period between 1906 and 1909, when Dr. J. E. Crewe held the office. Rochester grew rapidly after the turn of the century, there were many transients among its population, and the schools were large and were expanding. In 1911 and 1912 there came obstinate and recurrent epidemics of scarlet fever which alarmed laity and physicians alike and officials of the railroads over which many persons constantly were arriving in and departing from the city. Dr. Adams, as health officer, was working under a city council which in March, 1912, rejected the offer of the Minnesota State Board of Health to aid the city in securing an expert special health officer to supervise medical inspection of school children and to devote his entire time to public service in city and community; the salary was to be $3,000, one-third paid by the state board and two-thirds by the city. Rochester was honored as one of the first cities in southern Minnesota to receive the offer of special help. When the city council refused this opportunity, the representative citizens of Rochester were indignant. At this point the council reappointed Dr. Adams to succeed himself as health officer. He was typical of health officers of that period in countless communities throughout the state and country, and in the scarlet fever epidemic of 1912 he was confronted with an emergency with which he obviously was not fitted to cope. Matters came to a head on May 1 of that year when a large group of citizens, businessmen and physicians, presented themselves before a meeting of the council, rebuked the council and certain aldermen, demanded Dr. Adams' resignation, and proposed to seek at once the aid of the state board of health. Dr. Adams resigned, protesting only that his efforts had been hampered by interference. At the close of the hectic session, which took place between the hours of eight and twelve at night, a delegation proceeded by automobile to Mayowood, where they offered the vacant post of health officer to Dr. C. H. Mayo. Dr. Mayo accepted, and thereafter for many years he directed the public health work of Rochester.

After Dr. Adams retired as health officer, he returned to general practice. His chief intellectual hobby had always been the study of physical science. Increasingly from the early nineties he had become interested in psychic phenomena and also in the question of immortality, subjects on which he lectured before local groups and about which he began to write a book. Early in 1919, on inheriting a considerable fortune, it has been said, Dr. and Mrs. Adams returned to Ohio and thereafter made their home at Lakewood, on Lake Erie, near Cleveland. Dr. Adams' name was listed in each issue of the Directory of the American Medical Association from 1919 through 1934, after which it did not appear.

L. H. Aiken, who was born at Norfolk, Connecticut, about 1825, practiced medicine in Connecticut, and at Vineland, New Jersey, where he combined practice with operating a drug store. In the autumn of 1866 he came to Minnesota because of reduced health. After a short time in Saint Paul he came to Rochester, where with the exception of short intervals he spent the next twelve years. Throughout his residence he was a good and conservative citizen, a prohibitionist, a member of the Congregational Church, a worker for the improvement of the city schools; in 1872 he was a member of the school examining committee.

There is little evidence that Dr. Aiken practiced medicine actively in Olmsted County. It appears rather that he was a man of some means who chiefly conducted a loan and mortgage office; he had a brother who was at that time the president of the First National Bank of Chicago. At various times between 1867 and 1880 the doctor was associated in business with John Edgar, a citizen of Rochester, who for many years gave animation to the civic scene. For a time in 1867 and 1868 Dr. Aiken and his wife, a native of Hartford, Connecticut, left Rochester for Rockford, Illinois, where the doctor was engaged both as a real estate dealer and a druggist. Mrs. Aiken died in Rockford, and in 1869 Dr. Aiken returned to Rochester.

On July 5, 1871, after a sedate courtship which is recalled by Rochester residents who then were school children, Dr. Aiken was married in Rochester to Miss Isabella Cutler, of Lexington, Massachusetts. Mrs. Aiken was a woman of charm and ability, who had been a member of the high school faculty since 1868 and, for a time, high school principal, the first woman to hold the position in Rochester The Aiken home was "on Third Street, south of the Court House," the red brick house to be occupied forty years later by Dr. Georgine M. Luden. In the next few years Dr. and Mrs. Aiken spent the winters in southern travel for the doctor's health. In Nassau, in March, 1880, Isabella Cutler Aiken was stricken with yellow fever and died within a few days. Dr. Aiken, then rapidly failing, returned to Rochester to dispose of his property in preparation for spending his declining days in his native place. He died in Norfolk, Connecticut, on October 31, 1880. An obituary contained the following comment: "Trained from his early youth under one of New England's truly great men, he died as he had lived, in the faith of his fathers."

Joseph Alexander (1826-1896) was from 1854 a useful citizen in Rochester, Minnesota, successively carpenter, furniture manufacturer and proprietor of a woolen mill. At all times he was an evangelist who believed in free thought and free speech, and, wherein this chronicle is concerned, an herb doctor. His factory, mill, and later a feed mill occupied sites on Bear Creek in southeastern Rochester. The family home near by was not far from the spot where some years later Dr. W. W. Mayo had his farm home. In earliest years the neighborhood was a lonely one where inquisitive Indians and prowling black bears were the most frequent callers.

Born in the Parish of Ramsbury, County of Wilts, England, Joseph Alexander came to America in 1844 accompanied by his bride, who had been Hannah White, daughter of a feed and coal dealer of the same parish. After a brief stay in Albany, New York, Mr. and Mrs. Alexander traveled to Whitewater, Wisconsin, where they lived nine years before settling in Minnesota.

On a first trip of investigation into Minnesota Territory, Mr. Alexander caught a ride from La Crosse with a man and his son who were driving to Oronoco. In the late afternoon of October 12, 1854, the party crossed the Olmsted County line and stopped for the night at a camping ground by a stream. "At the spring I found several of the campers sick and as I had some medicine with me and also understood what herbs to administer to the sick, this was my first practice in Minnesota."

This practitioner at no time claimed to be a member of the regular medical profession, although he long had an extensive practice and sometimes used the title "doctor." His home was his office and there he had a medicine closet about 6 x 8 feet, lined with shelves on which were stacks of little white boxes that contained his herbs, powders and pills. After his death his daughter, Mary, carried on the practice, combining it with practical nursing and midwifery. One of his early circulars is quoted here, in simplified form, because it indicates the undertakings of a representative herb doctor in the second half of the last century, an honest man who played a part in the healing of the sick:

> Nature's Remedies. Purely Vegetable! Dr. J. Alexander's Herbal Remedies. Will purify the blood from all impurities. Use Dr. J. Alexander's Vegetable Medicines for healing diseases, both chronic, acute and constitutional, such as: Blood poison, scrofula, salt rheum, neuralgia, la grippe, constipation, liver disorders, rheumatism, malaria, eczema and itch, worms, tape worm, and consumption. Heart disease, dyspepsia, indigestion, Bright's disease and other kidney troubles, all lung diseases, sick headaches, croup, erysipelas, diphtheria, piles and catarrh.
>
> My Bitter Sweet Ointment for all aches and pains, rheumatism, pneumonia, cuts, burns, sprains and fever sores. Try it and find out what it will do.
>
> Mrs. J. Alexander will prepare, and put up for sale, medicines for the diseased conditions peculiar to women. Will keep, also, Dr. O. P. Brown's Tissue Builder for ladies, for the skin and complexion.
>
> My medicines are extracted by the cold process, so that they lose none of their virtues by heat.
>
> Please preserve this circular and I will call for it.

In 1946 there were living more than a hundred descendants of Joseph and Hannah Alexander, many of them in Olmsted County.

Joseph S. Allen (initials sometimes misprinted J. A., J. H., or J. L.), a member of the regular profession, physician and surgeon, came to Rochester, Minnesota, in March, 1865, from Crawfordsville, Montgomery County, Indiana, accompanied by his wife, who was in frail health, and their four children, two sons and two daughters. Dr. Allen announced that he had purchased the property known as Head's Block on the corner of Main and College Streets, and that in one of the stores of the building he expected to establish a drug store. Mrs. Allen died in Rochester on December 26, 1868, after a protracted illness from pulmonary tuberculosis.

Although Dr. Allen's personal story is here incomplete and the family history has not been learned, significant information has been gleaned. Dr. Joseph Allen, of Crawfordsville, Indiana, was present on June 6, 1849, at the historic medical convention held at Indianapolis and became a charter member of the Indiana Medical Society organized on that date. Dr. Joseph S. Allen, of Crawfordsville, served during the Civil War as surgeon of the Tenth Indiana Volunteer Regiment of Infantry.

In Rochester, Dr. Allen was active in organizing the early Olmsted County Medical Society, the initial meeting of which was held in his office on April 15, 1868. He served as president pro tem, submitted an acceptable constitution for the society, was elected the first president, was appointed head of the committee on obstetrics, and was one of a committee of six to draw up the first fee bill.

At the annual meeting of the Minnesota State Medical Society in Saint Paul on February 1, 1870, Dr. Allen became a member, and although he moved from the state two years later, his name remained on the roster through 1876. In 1871, having recently visited the Pacific Coast, he discussed before the society the climate of California in relation to phthisis.

From the memoirs of the late Dr. David Sturges Fairchild, of Iowa, who from May, 1869, to July, 1872, was a young practitioner of medicine in the village of High Forest, Olmsted County, comes an anecdote that gives the only reference noted to Dr. J. S. Allen's age and cites an incident in his practice. During the winter of 1870 Dr. Fairchild was called on a case of puerperal convulsions, the first of the sort he had seen. At the end of some thirty-six hours he confessed himself discouraged, and Dr. Allen was called in consultation. "To my great comfort the weather became so bad that Dr. Allen would not venture to return home. It was midwinter and the roads nearly impassable. Taking the roads together with the storm and Dr. Allen's advanced age, there seemed no choice for the doctor but to remain all night." In discussing treatment Dr. Allen decided against giving the patient morphine because it was too dangerous and "would be only piling congestion on congestion." When both physicians had given the patient up, however, he agreed that under the circumstances the drug could do no harm, and Dr. Fairchild administered about one fourth grain of morphine, measured out on the point of a knife blade. The patient recovered.

Although from 1865 to 1872 Dr. Allen maintained his home in Rochester, he was away months at a time, in Indiana or in the West, because of impaired health. In April, 1872, convalescent after a stroke of paralysis, he disposed of his effects in Rochester and with his son, Joseph F. Allen, and his two daughters, one of whom was an invalid, moved to Washington, in the region of Puget Sound.

The son, Joseph F. Allen, who long was a resident of Yakima, was married at Oakland, California, in 1878, to Mary J. Furlow, daughter of John and Elizabeth Young Furlow, pioneer settlers of Olmsted County, and sister of Samuel C. Furlow, who for many decades was a resident of Rochester, prominent in business and in civic and educational enterprises. John Beard Allen, second son of Dr. Allen, was married to Celia Bateman of Rochester. For two and one-half years he studied law in the office of the Hon. Charles C. Willson of Rochester, and after being admitted to the bar, he also moved to the Northwest. John B. Allen became United States Senator from Washington; he died in 1903.

Wilson Adolphus Allen was born on March 6, 1834, in Pendleton, Madison County, Indiana, and died in Rochester, Olmsted County, Minnesota, on May 11, 1934. He had been engaged in the practice of medicine seventy-four years, for seventy-two of which he had been a homeopathic physician. He spent sixty-nine years in Minnesota, sixty-two of them in Olmsted County. At his death he long had been the oldest practicing physician in the state.

Wilson A. Allen was one of eight children born to William Allen, a native of North Carolina, and Sara Prather Allen, a native of West Virginia. The progenitors of this branch of the Allen family, Leonard stated, were three brothers of English extraction who came from Switzerland and settled in New England and the Carolinas in an early period of American history. Joseph Allen, a farmer, father of William Allen, immigrated to Wayne County, Indiana, in 1809. William, also a farmer, removed to Madison County, where he made his home; he died in 1875, at the age of seventy-seven years, while on a visit to his son in Rochester, Minnesota. In 1910 there were living of the family, besides Dr. W. A. Allen, two daughters, Mrs. H. A. Mann, of Wells County, and Mrs. C. W. Wyany, of Hendricks County, Indiana, and Dr. Benjamin Frank Allen, of Glencoe, Minnesota.

Relationship between Dr. Wilson A. Allen and Dr. Joseph S. Allen, subject of a preceding sketch, has not been established, but it is interesting that the Christian name, *Joseph,* was common to both families and that both groups were early in Indiana.

Wilson A. Allen received his early education in the district schools and the seminary at Pendleton. Although for a short time he studied for the ministry, record shows that after his graduation from Franklyn College, Johnson County, Indiana, he returned to Pendleton Seminary for one year as instructor in mathematics and that thereafter for four years in Pendleton he conducted a drug store and during that time studied pharmacy. From childhood he had wanted to be a doctor, and in 1860 he began the study and practice of medicine under Dr. T. G. Mitchell (1827-1903), of Pendelton, a physician of the old school, with whom he remained five years.

On October 25, 1855, Wilson A. Allen was married to Flora S. Huston, a daughter of John Huston and Anna Huston of Portsmouth, Ohio; John Huston, a native of New York, was a builder of boats that plied the Ohio River and tributary streams. In 1856 Dr. and Mrs. Allen came to the vicinity of Cedar Rapids, Iowa, where they lived on a homestead for three years; in 1859 they returned to Indiana, and in 1865, because of the doctor's ill health, they came to Plainview, Wabasha County, Minnesota, accompanied by members of the Huston family. Mr. and Mrs. Huston spent their old age in Rochester, where they died in their eighties in June, 1890, and May, 1891, respectively; they were survived by two daughters, Mrs. Allen and Mrs. W. L. Hardy, of Plainview.

Dr. Allen came from Plainview to Rochester in September, 1872, taking over the practice that he had purchased in the preceding June from Dr. Edmund Beckwith, a homeopathic physician who was removing to Muncie, Indiana. In May, 1877, Dr. Allen entered partnership with Dr. Frederick R. Mosse, a young recent graduate of the Homeopathic Medical College of Chicago, who had come to Rochester a few weeks earlier They had a suite of offices in the Leland Building, which for decades was Dr. Allen's headquarters. The partnership was dissolved in the summer of 1879. Early in 1879 Dr. Allen recognized the desirability of a degree in medicine, and in March of that year was graduated from the Hahnemann Medical College and Hospital of Chicago.

For the next thirteen years Dr. Allen practiced alone, extending his already county-wide practice. Often in a surgical case, of hydrocele, uterine fibroids, nevus, hernia or other condition, in which the operation was performed at the patient's home, he was assisted by his friend, and later his partner, Dr. O. H. Hall, once of Ohio, who was long in Zumbrota, Goodhue County, Minnesota. Dr. Allen took a postgraduate course at the Hahnemann Medical College of Chicago in 1883, made numerous clinical trips, and was faithful in attendance at meetings of homeopathic medical groups. He was active in the Southern Minnesota Homeopathic Medical Society and in the American Institute of Homeopathy. In 1887 he was elected vice president of the Hahnemann Alumni Association.

In the spring of 1892 Dr. Charles T. Granger, of Rochester, newly graduated from the Hahnemann Medical College of Chicago, returned home to enter partnership with Dr. Allen, the senior partner to specialize in the diseases of women and the junior in diseases of eye and ear. Dr. Allen at that time was interested in treatment for hernia also, by the Fidelity Method, which was said to obviate the need for truss or surgical intervention. In November, 1892, Drs. Allen and Granger opened the Riverside Hospital in East Rochester. In the history of this hospital, given earlier in this paper, it was told that when the hospital was closed in September, 1895, Dr. Allen moved to Saint Paul, in partnership with Dr. O. H. Hall, although he maintained his home in Rochester. Because he was then mayor of Rochester, he held his mayoralty and returned to Rochester once a week, to inspect construction of the city's new sewer system and to meet with the city council. Early in 1896 he terminated his practice in Saint Paul and returned home.

(To be continued in the March issue)

President's Letter

POSTGRADUATE SEMINARS

IT IS BECOMING increasingly difficult for American physicians to be good physicians.

Paradoxically, the myriad developments of medical science that are making the conquest of disease easier, are, at the same time, making the practice of medicine more complex and challenging.

Each of us, if we are to uphold the constantly climbing standards of the profession, must serve as a repository for an overwhelming store of therapeutic knowledge and skills. Fortunately this obligation is easier for us to assume than it might be, due to the efforts of the American Medical Association, our own State Association, the component county medical societies, the Minnesota State Board of Health and the University of Minnesota Medical School.

These groups offer continuing opportunities for the acquisition of advanced information: the national, state and county societies, through periodic scientific meetings; the Board of Health and the Medical School, often pooling their facilities to develop post-graduate courses and clinics for study.

Minnesota physicians are familiar with the courses held at the University's Center for Continuation Study; but the newest result of concentrated analysis of the post-graduate study problem is the presentation of post-graduate seminars in the various districts of the state. Emphasis currently is on cancer, cardiovascular diseases and psychosomatic medicine. Pattern for the eight-week course is an informal one, with physicians, nurses, dentists and pharmacists gathering to discuss these problems with members of the University medical staff.

Inclement sub-zero weather during the two initial presentations did not restrain the attendance and interest of the Duluth series of meetings in progress. These are the first of courses to be presented throughout the state. Component societies are encouraged to prepare for these seminars and participate in the preparation of the programs.

F. J. Elias.

President, Minnesota State Medical Association

◆ Editorial ◆

CARL B. DRAKE, M.D., *Editor;* GEORGE EARL, M.D., HENRY L. ULRICH, M.D., *Associate Editors*

SOCIALIZED MEDICINE

THE FOLLOWING editorial appeared in the *Minneapolis Star* of July 6, 1949. Senator Humphrey of Minnesota apparently thought it so good that he presented it to the U. S. Senate on August 1, 1949, for publication in the Appendix of the Record.

> SOCIALIZED MEDICINE?
>
> "Socialized medicine" is a term seldom used by the British, although obviously that is what they have got. Medical services are paid for from general taxation, private practice is discouraged, and hospitals have been taken over by the Government.
>
> The Labor Party in Britain is a Socialist Party, but it isn't often called that. Thus Britishers are not likely to apply the word "Socialist" to projects of the party. They speak of their "health scheme." When they occasionally say "socialized medicine," they have borrowed the phrase from America.
>
> In this country socialized medicine is applied to many things which aren't socialistic in the usually accepted sense.
>
> The administration has proposed a national health-insurance program to me financed by pay-roll deductions and other taxes. Many legitimate arguments may be brought against such a plan—the shortage of doctors, the tendency of people to make unwise demands upon public services, the advantages of voluntary medical insurance, etc. But the administration proposal is hardly more socialistic than our present social-security setup with its old-age and other benefits.
>
> Propagandists against public health insurance are partly responsible for calling this plan "socialized medicine." Whether such usage helps their case or not is problematical. But they may be breeding a great danger for the future.
>
> If at some time a public-insurance system is voted in the United States, the people may come to accept it as socialized medicine. That might make them more easily susceptible to the truly socialistic projects which lead so easily to statism.
>
> Let's not say socialized medicine unless that is really what we mean.

We are reproducing the editorial, for it offers a good illustration of the confusion which exists in many quarters in the use of the terms "socialize" and "socialism."

In England, according to the editorial, medical care is provided by the government as part of the socialistic form of government. The English do not call it socialized medicine but that is what they have. Essentially, the same kind of medical care is proposed for our country, but we mustn't call it what it is—socialized medicine—because if and when a public insurance system is adopted other "truly socialistic projects" will be more easily adopted by the public.

Even Webster leaves room for uncertainty as to the meaning of "socialize" when he defines it at "to render social or socialistic." "Socialism" he defines clearly as "a political and economic theory of social reorganization, the essential feature of which is governmental control of economic activities, to the end that competition shall give way to co-operation and that the opportunities of life and the reward of labor shall be equally apportioned."

A completely socialistic government would therefore be complete control of economic activities. While in England there still exists some private industry, the government has control of most of the economy, and England is a good example of a socialistic government which it took forty years gradually to achieve. The term "socialize," however, can refer to socialism as a theory of government or to group action which may have nothing to do with socialism. Commercial insurance companies assume risks already present. In a sense, the industry is socialized. The government provides hospital care for those who cannot provide it for themselves through private means. This is socialized medicine but scarcely socialistic.

When the government enters a field in competition with private industry, however, that is socialism, and socialism has been making inroads on our economy to an alarming degree. Private industry cannot compete with government-backed projects in which tax funds make up deficits. Government monopoly is bound to result eventually.

Socialism has entered our economy farther than many realize. It has been fostered by various groups, is known under a variety of disarming names, and has been insidious in its operation. Any government that competes with private industry in the building field, electrification, financial loans, et cetera, has become socialistic. The seriousness of the situation has been called to the attention of our citizens forcibly by John T. Flynn's book, The Road Ahead—America's Creeping Revolution.* The book is rightly a best seller and every American who has the preservation of private industry and freedom at heart must read this book. *The Reader's Digest* is to be congratulated for running a condensation of the book as the leading article in its February, 1950, issue. We, in America, are drifting rapidly in the same stream that caught England and sapped its vitality. Only an informed and freedom-loving public can prevent the extension of socialism and a reversal in the present tide.

RED CROSS FUND CAMPAIGN

IN MARCH each year, the American Red Cross goes to the people of this country for support of its program for the year. The Red Cross has a peace program which has many worth while facets. It is constantly organized to meet emergencies such as are presented by flood, fire and hurricane with assistance to the unfortunate. Less known activities include the services of some 2,000 Red Cross field workers to the armed forces at home and abroad which last year cost some $17,000,000; the Red Cross Motor Service which clocked up some 9,000,000 miles of transportation last year; the twenty-eight regional blood centers with thirty-two attached mobile units, serving population areas totaling 40,000,000 persons. It is expected that some fifteen additional regional centers will be established during the fiscal year and that blood collected from voluntary donors will be distributed to nearly 2,000 hospitals. Since the Red Cross began its Water Safety program in 1914, it has issued over 6,000,000 certificates for courses completed in swimming and life saving. The Red Cross also has its representatives in the sixty-eight Veterans Administration hospitals, has recruited nurses for "polio" duty and for disaster-relief operations, and conducts classes for children in the primary and elementary grades in accident prevention, and other safety measures.

The Red Cross, because of its performances over the years in peace as well as in war, has no difficulty in selling itself to the people. Its newest departure, however—the supplying of blood banks to communities—perhaps its most valuable peacetime activity, is a very costly project and requires therefor generous financial support. Fully as essential is generous co-operation on the part of blood donors. A realization of the often lifesaving qualities of this comparatively new therapeutic agency should be sufficient to assure the success of the Blood Bank.

ELECTROPHRENIC RESPIRATION

THE *Harvard Public Health Alumni Bulletin* for November, 1949, contains an account of the development of the electrophrenic respirator in the Physiology Department at Harvard. This unique method of producing artificial respiration by electrical stimulation of the phrenic nerve was developed by Dr. Stanley J. Sarnoff and Dr. James L. Wittenberger first on experimental animals (antivivisectionists take note) and then on human beings. It was found possible to apply the current in such a manner that lung ventilation could be controlled as to depth and frequency. A striking feature was that artificial excitation of the phrenic nerve caused immediate suspension of activity of the respiratory center provided the artificial respiration was sufficient to supply oxygen demands.

At first the electrode was supplied to the exposed phrenic nerve. Later it was found that the electrode need only be placed on the skin overlying the phrenic nerve, the indifferent electrode being placed over the corresponding shoulder. The only sensation experienced is a slight tingling at the point of contact.

Work began on the development of the apparatus in January, 1948, and it was first used in the fall of 1949 on a nine-year-old boy at the Children's Hospital in Boston who was suffering from respiratory difficulty resulting from poliomyelitis. His respiration was maintained continuously for three days and three nights and intermittently thereafter for another three days while his respiratory center was recovering.

One important point is that the patient must have constant attendance on the part of a trained individual lest the electrode slip from its position. Although other patients with bulbar involvement in Boston and at the Los Angeles County

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*Flynn, John T.: The Road Ahead. New York: The Devin-Adair Co., 23 E. 26th Street.

Hospital have been kept alive by this method, it has not so far replaced the Drinker body respirator (iron lung) which incidentally was also developed at Harvard by Philip Drinker and Louis A. Shaw. The importance of a maintained electric current is most obviously vitally essential for both apparatuses.

PREVENTION OF DENTAL CARIES

IT was about 110 years ago that dentistry in America began to be a specialty distinct from medicine. During this period American dentistry has become "tops" compared to dentistry in the rest of the world. But in the prevention of dental caries there seems to be a woeful lack of knowledge.

There is nothing new in the idea that fermentation of starchy food between the teeth causes the formation of lactic acid which affects the enamel of the teeth and leads to decay; hence, the well-nigh universal recognition of the importance of brushing the teeth. It is true that there has been some difference of opinion as to whether the direction of the brushing should be north and south or east and west; whether a powder has distinct advantages over a paste; and whether a medicated or simple alkaline dentifrice should be used. The use of dental floss or a toothpick following a thorough brushing of the teeth will convince the most skeptical that brushing alone is not 100 per cent effective.

In the February issue of *The Journal of the American Dental Association,* Dr. Leonard S. Fosdick, professor of chemistry at Northwestern University, reports that as a result of a study of nearly 1,000 college students, he has found that the simple expedient of brushing the teeth immediately after meals or after the ingestion of sugar-containing food with an unmedicated dicalcium phosphate dentifrice reduces the incidence of caries more than 50 per cent. He claims to have shown that the acid action on the enamel surface of the teeth begins as soon as three minutes after the sugar enters the mouth, reaches a maximum acidity within twenty minutes, which persists for thirty to ninety minutes. This confirms the opinion widely held by dentists that the ingestion of candy is deleterious to the teeth. The same presumably holds for chewing gum and soft drinks, both of which contain a high percentage of sugar. The author seems to have proven statistically that students who had candy and soft drinks conveniently available suffered from more dental caries than those who did not, and the mere easy access of a drinking fountain for use after ingestion of the sugar caused a demonstrable lowering of the incidence of caries. We would suggest a further arbeit for the author in the way of an investigation of the value of dental floss or the toothpick after meals in reducing dental caries. We venture to predict a still further lowering of dental caries by this simple means.

Whether the methods of prevention of dental caries as here suggested are likely to be generally adopted, however, seems problematic. We have difficulty in visualizing the general adoption of the use of the toothpick after dessert, even though the procedure is politely shielded by a napkin; or the carrying of a toothbrush for easy availability after meals; or the final swishing about of a mouthful of water in order to wash away the sugar in the mouth so dangerous for the dental enamel.

Putting levity aside, Dr. Fosdick's observations contain suggestions which can be put into effect at least in part to lessen dental caries. Brushing the teeth after eating rather than on rising and retiring and the drinking of water after eating food containing sugar are procedures easy to follow.

The initial quality of the enamel and dentine of the teeth depends, without any doubt, on the quality of the diet. The natives of certain South Sea islands who live largely on fish and animal oil are said to have perfect teeth. This suggests that calcium and vitamins are important factors. The same holds true for individuals who have been born and brought up in areas where the soil contains fluorine. This observation has led to the discovery that the topical application of 2 per cent sodium fluoride to the permanent teeth of children once or twice a week on four occasions after a cleaning of the teeth results in a reduction of 40 per cent in the incidence of caries.* The preliminary cleaning of the teeth seems essential. Following the application with a 5 per cent solution of calcium chloride or more than four applications of the sodium fluoride solution does not produce any additional reduction in the incidence of caries. Here is a simple procedure which seems to merit extended trial and is being widely investigated.

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*Effect of Fluorides on Dental Caries. JAMA, 141:1302, (Dec. 31) 1949.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

FSA ESTIMATES 1960 NEED FOR DOCTORS

Using three methods of computation, the Federal Security Agency has estimated the number of physicians needed in 1960 by the United States. The estimates vary from 244,532 to 272,172.

Applying the formulae to Minnesota, the FSA would raise the number of physicians in this state from 1940's total of 3,280 to either 5,021 or 4,723 or 4,218.

These studies, complete with charts and graphs, are included in a publication entitled "Health Service Areas" and subtitled, "Estimates of Future Physician Requirements." Anyone interested may order this publication by writing the Superintendent of Documents, U. S. Goverment Printing Office, Washington, D. C.

EWING DENIES ANALOGY OF BRITISH, U. S. PLANS

Oscar Ewing's six weeks' inspection of Europe is over and he is now engaged in deflating, somewhat, the airy balloons of confidence he was launching upon first looking into Bevan's England.

Earlier quoted as ready to transfer, with only minute changes, the British health scheme to America, Ewing says now, in a laborious statement that perhaps consumed most of his voyage home, that the two plans are entirely unlike.

"I come home with even greater confidence in President Truman's proposal for national health insurance in the United States," he declared. But his statement could be examined from both sides: was England's system working out so inefficiently that anything else in the line of health insurance looked good or, was the English system, in practice, so beneficial to the people that the Administration's prescription for tax-medicine should not be longer delayed?

Mr. Ewing does nothing to clarify this issue as he continues his press release:

> "His (the President's) proposal is based on principles entirely different from the British program, which I investigated in some detail. The British plan is totally unsuited for the United States. In England the health service is part of a broad program to reorganize the basic social and economic structure of the country, and eight-tenths of its costs come out of general tax revenues. This is utterly foreign to the President's proposal."

National Press Club members, lacking Mr. Ewing's facility for regarding two diametrically opposed statements as consistent, were asking some embarrassing questions when he addressed that group on January 24.

LAYMAN AMONG FIRST TO PAY AMA DUES

This month the AMA received a check for $25 and an explanatory letter from a Chicago businessman. The letter said, in part:

> "I cannot put M.D. after my name but I can, at least for a while, still put U.S.A. As a consequence, please accept the enclosed check for $25 as a slight token of regard for my doctor and all his colleagues. These are my 'dues' as a citizen, and I hope they will help in your fight against socialized medicine."

STASSEN ATTACKS SM IN PRINT, ON AIR

Harold E. Stassen, president of the University of Pennsylvania, has loosed an effective blast of statistics and observations against the Truman health plan.

Writing in the January *Reader's Digest,* the former governor of Minnesota quipped:

> ". . . it is my considered opinion that the British program has resulted in more medical care of a lower quality for more people at higher cost."

Most convincing of his statements was this:

> ". . . it does seem that the additional tombstones in the British cemeteries—72,125 more than in the year before the National Health Program went into effect —are grim signposts on which we can read: 'Never take this road for a National Health Program.'"

Stassen has just completed a very extensive study of the British health scheme and his report, pared of adjectives and emotionalism, presents a sharp contrast to Mr. Ewing's six-day tour of Britain and his report of "Excellent."

On January 29, Mr. Stassen met Senator Pepper (Florida) in a radio debate, and left the senator sans argument and sans applause.

The senator, reciting the virtues of compulsory health insurance in other countries, lost ground when he cited Sweden as an example and was confronted by the fact that Swedes live longer in Minnesota than they do in their native Sweden.

He came a cropper again when he brought up the matter of inequitable distribution of medical care and was reminded by Stassen that the most severe cases of maldistribution are to be found in the South, where the Senator's own political party fosters the race prejudice that deprives Negroes of fair opportunity for medical care and medical education.

LONDON TIMES POKES FUN AT SOCIALISM

Last month the *Wall Street Journal* devoted an editorial to the neglected canines, felines and even bovines under the present social security system.

This month the London *Times* is concerned about this same question, having been prompted by news of three collies seeing a "Lassie" movie.

Said the *Times:*

> "It must be confessed that the animals, so far, seem to be getting precious little out of the welfare state. Nothing has been done to provide them with a longer period of compulsory education; they have no right to free false teeth or a cheap interment; no one has given them a five-day week.
>
> "Perhaps all this is to come. Perhaps, when there is rather more money in the Exchequer, the Government will be able to mobilize a corps of inspectors to check up on the overtime put in by sheep dogs, to make sure that children's ponies are getting their due amount of leisure and to inculcate in the cat that parity of esteem for its fellow animals which at present it so conspicuously lacks. Meanwhile, a tentative, but significant, step in the right direction has been taken at Whitley Bay, though admittedly only by private enterprise; for the three men who took their collies to see a film seem to have done so without the support of the Arts Council or any similar body."

The editorial goes on, with trenchant drollery, to enumerate the problems which this new sphere of activity would bring about in an already regulation-ridden socialistic state. For example:

> "If some dogs are capable (as seems the case) of enhancing their cultural status by going to see a film about a dog, have we any right to deny our horses a similar opportunity?"

The absurdity of the editorial transfers easily from the animal world to the human one and it appears that more than one Britisher would find the humor grimly applicable.

MANY COMPROMISE BILLS IN HOPPER NOW

Most legislative prophets have been saying that the Administration's health bill, containing such familiar clauses as "payroll deduction," "central fund," et cetera, hasn't a hope of passage this session of congress. However, physicians, and the public whose health is guarded by family physicians, cannot relax at this point. For, although the lay public is beginning to be apprised of the dangers inherent in a compulsory system of medical care, engendered and controlled by the government, the public is not so well aware of the dangers of so-called compromise proposals, proposals which would bring on government control by progressive stages.

The school health service bill (1411) is a key example of this piece-meal type of legislation—bringing in, as it would, all school children between the ages of five and seventeen, under a government medicine program. Dangers lurk, too, in many of the medical education assists which are constantly being proposed, altered and considered by committees and suspiciously viewed by those who see in federal money a hint of federal interference.

Compromise bills are being advanced by many congressmen who have a sincere interest in bettering the health of the nation, but whose proposals would short cut the necessarily slow, but sound, advancement of better health standards through the extension of methods already tried and proven.

Many who look at England's system see favorable results. They take an unscientific view, seeing more people going to the doctor and receiving more medical and hospital care than heretofore. Even admitting the abuses committed by hypochondriacs and malingerers, the system is still considered by some as good. They even draw a comparison between the medical and hospital care afforded to veterans in this country under a governmental system. The critical fallacy in this thinking is that not now, nor in the future, will great medical discoveries emerge from laboratories or practices which are supervised by the government.

Minnesota Academy of Medicine

Meeting of November 9, 1949

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, November 9, 1949. Dinner was served at 7 o'clock and the meeting was called to order at 8:10 p.m. by the President, Dr. J. A. Lepak.

There were sixty-two members and two guests present.

In the absence of Dr. Cardle, Dr. William Hanson read the minutes of the October meeting, and these were approved as read.

Dr. Harry Zimmermann read a memorial to Dr. L. C. Bacon, who died June 4, 1949. (This Memorial was published in the September, 1949, issue, page 932.)

Dr. Erling Hansen read a memorial to Dr. Walter E. Camp, who died September 4, 1949.

WALTER E. CAMP

1889-1949

Walter Edward Camp was born on September 21, 1889, in Springfield, Missouri, and died September 4, 1949, in Minneapolis, after several months' illness. He was educated in the public schools of Springfield and the University of Missouri where he was given his A.B. degree. From 1908 to 1912 he taught histology at the University of Missouri, where he began his medical course. In 1912, he came to Minnesota where he continued to teach in the Anatomy Department, while he finished his medical school work. He received his M.A. and M.D. degrees in 1915, and interned at St. Andrews Hospital. He took postgraduate work in eye, ear, nose and throat at New York Post-Graduate Medical School and Hospital during part of 1917 and 1918 and at the Massachusetts Charitable Eye and Ear Hospital in 1921. Later he spent several months in Vienna. During World War I, he was a Lieutenant in the Medical Corps of the Army, serving for some time in Camp Dodge, Iowa, and in Washington, D. C. For several years after the first World War he was associated in practice with Drs. Horace Newhart and Erling W. Hansen. Since 1928, he had maintained an office alone in Minneapolis.

Dr. Camp was assistant professor of ophthalmology in the University of Minnesota Medical School, where he was a valued teacher in ocular pathology. His preeminence in this field was nationally recognized, and, for several years, he taught pathology in the Instructional courses given by the American Academy of Ophthalmology and Otolaryngology at its annual meetings.

Dr. Camp was a member of the Staffs of Northwestern and Abbott Hospitals, and of the Minneapolis Academy and Minnesota Academy of Medicine and the Minnesota Academy of Ophthalmology and Otolaryngology. He had been president of the latter two organizations. He was a member of Hennepin County Medical Society, Minnesota State Medical Association, and the American Medical Association. He was a fellow of the American College of Surgeons. His medical fraternity was Phi Beta Pi, and he held membership in Sigma Xi, honorary scientific fraternity, and Alpha Omega Alpha, honorary medical fraternity. He belonged to the Minneapolis Club and Minnikahda Club and was a 32nd Degree Mason.

Dr. Camp was married to Amy Floy Kinney, whom he met in Washington during the first World War. They had three children, Amy Katherine Camp Walker, Walter Edward, Jr., and Lucille Kinney Camp, all of whom survive him, together with three grandchildren and two brothers.

Walter Camp will long be missed by his friends in this Academy and his many other friends, as well as by his family to whom we extend our earnest sympathy in their great loss.

The scientific program followed.

LINGUAL GOITER

MARTIN NORDLAND, M.D. and MARTIN A. NORDLAND, M.D.
Minneapolis, Minnesota

The occurrence of thyroid anomalies in the tongue is quite rare. It might be observed more frequently if hypertrophy developed in nonmigrated thyroid tissue in all cases. This anomaly is reported only when it causes symptoms. It should be of interest to the profession in general from a diagnostic point of view, and is of unusual interest to the surgeon because of the practical problems involved in the surgical removal. The site for the occurrence of thyroid tissue in the tongue is at the pharyngeal portion in the region of the foramen caecum. The terms lingual thyroid, lingual goiter, aberrant or accessory thyroid are rather loosely used. The term *lingual thyroid* should be used when there is a thyroid gland in the neck and thyroid tissue in the tongue functioning as an accessory thyroid. Lingual *goiter* refers to hyperplastic thyroid tissue on the dorsum of the tongue which is the result of nonmigration of the thyroid anlage from the region of the foramen caecum with absence of thyroid tissue in the neck. The term *aberrant thyroid* should not be confused with *lingual thyroid* or *lingual goiter*. Convincing evidence has recently been presented by Warren and Feldman that lateral *aberrant* thyroids are metastatic tumors from carcinoma of the thyroid gland. The most comprehensive review of the incidence of lingual goiter and lingual thyroid appearing in the literature to 1936 was published by Montgomery. He established criteria of authenticity and accepted 144 cases, including one of his own. For his criteria of acceptance, he asked that (1) the examination of the specimen removed should reveal thyroid gland tissue, or that (2) thyroid insufficiency should supervene following the removal of the nodule, and that (3) the lesion should appear in the substance of the tongue between the epiglottis and the circumvallate papilla.

Of the 144 cases Montgomery accepted, the lesion

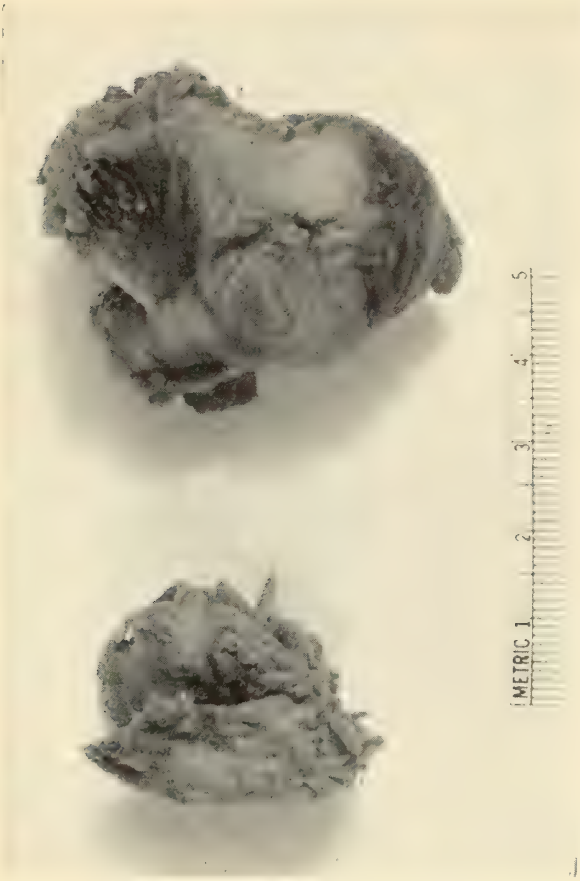

Fig. 1. Photographs of gross specimen.

occurred on the dorsum of the tongue in 142 instances.

Our case which fulfills all these requirements of the criteria of Montgomery is reported in order that it may be added to the cases reported in the literature. It was thought that it might be of interest because of the problem of diagnosis and the method of treatment.

Case Report

The patient is a white woman, aged fifty-seven, who was first seen by us on September 3, 1948 complaining of difficulty in breathing, recurrent hemorrhage from the mouth, husky voice, chronic cough, and a growth at the base of the tongue.

These were first noted about 1911, at which time she underwent an operation. Prior to this, she had consulted many doctors for all of the above complaints. The operation was unsuccessful because of profuse hemorrhage requiring a tracheotomy. The doctor told her that further operation would be necessary, and that he noted "crystals" in the contents of the "cyst" that he removed.

The patient had recurrent exacerbations of the above difficulties up to the time of our examination.

In the meantime, she consulted with numerous doctors and clinics without any definite diagnosis having been made. She, was treated alternately for allergy, chronic bronchitis, asthma and various respiratory disturbances without relief and with gradual increased severity of all her symptoms.

Physical examination revealed a thin, nervous white woman, aged fifty-seven, who appeared chronically ill. The general physical examination was negative with the exception of hypotension (blood pressure 92/70). The pulse was normal. Examination of the head and neck revealed a mass at the base of the tongue at the foramen caecum. This could not be visualized by ordinary examination with a tongue blade, but with the patient's co-operation, the upper surface of the mass could be seen and could be definitely outlined by digital examination. The mass was round, slightly irregular, relatively firm, not tender, and about 6 cm. in diameter. Blood studies and urinalysis were entirely negative.

The patient was operated upon September 10, 1948. Under intratracheal anesthesia, a transverse incision was made directly over the hyoid bone. The platysma muscle was divided and the hyoid bone exposed. Approximately half a centimeter of the hyoid bone was removed and the tumor at the base of the tongue mobilized. The mass was removed in three pieces with some difficulty, but hemastasis was adequate.

The mucous membrane of the pharynx was reapproximated with interrupted sutures of plain 0 catgut. The underlying cervical fascia was brought together with interrupted sutures 00 chromic. A running subcuticular suture of 00 plain catgut was employed and interrupted sutures of dermal and Wachenfield clips were used to close the wound. A split catheter drain was left in the operative field. The pathological report was as follows.

Macroscopic specimen—Specimen consisted of 12 grams of tissue removed from the base of the tongue (Fig. 1). The largest portion measured 5 cm. It was cystic and filled with degenerating necrotic yellowish brown tissue. It also contained a portion of the hyoid bone. A second portion measured 4 cm. and consisted of a thin walled cyst that contained necrotic granular material. The third portion measured 3 cm. and had an adenomatous yellowish brown appearance and contained two circumscribed nodules, measuring 1.5 and 1 cm.

Microscopic specimen.—Sections of the solid areas showed thyroid tissue composed of small acini that varied considerably in size. Some of the acini were fetal in type; others approached normal size and were well filled with colloid. There was a tendency for the acini to be arranged in adenomatous formation (Figs. 2 and 3). There was extensive degeneration present. Some sections showed marked hyaline degeneration with fibrous tissue replacement of the thyroid tissue. The cystic areas possessed a well defined fibrous capsule. The tissues were benign.

Diagnosis.—Aberrant thyroid tissue with fetal and colloid adenomas.

Comment

Because of the location of this tumor on the back of the tongue at the foramen cecum, it is correct to designate this as a case of lingual goiter (Fig. 4).

Thyroid insufficiency probably is responsible for most of the simple hypertrophies of lingual thyroid tissue. In about two-thirds of the patients who have been reported as having lingual thyroid hypertrophy, thyroid gland tissue was not demonstrable in the neck as in our case. Hypertrophy of thyroid tissue is very marked during the maturing peroid of puberty in early adult life. Likewise, many of the cases with lingual thyroids have been discovered during this period of life because of the tendency of thyroid tissue to hypertrophy at this

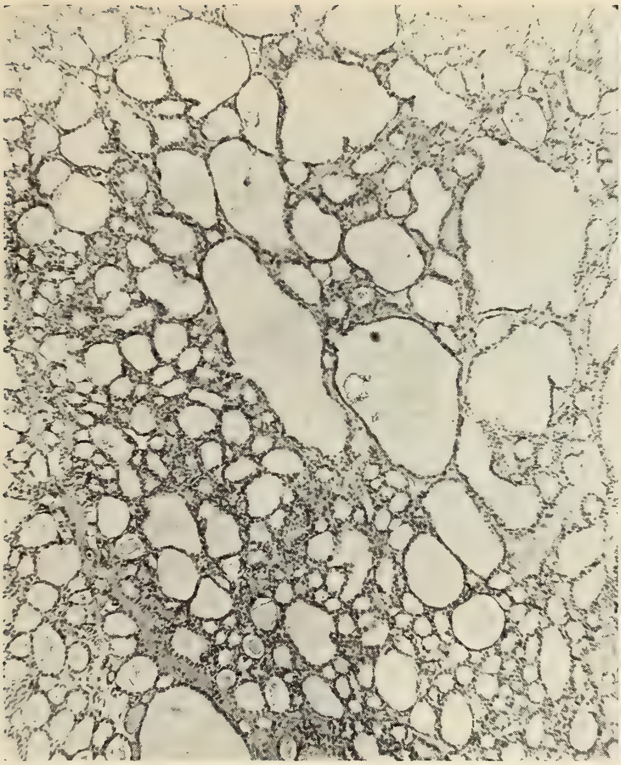

Fig. 2. Microscopic section under medium power (50X), showing a representative area. It cannot be distinguished from the usual colloid adenoma or benign adenoma of the thyroid.

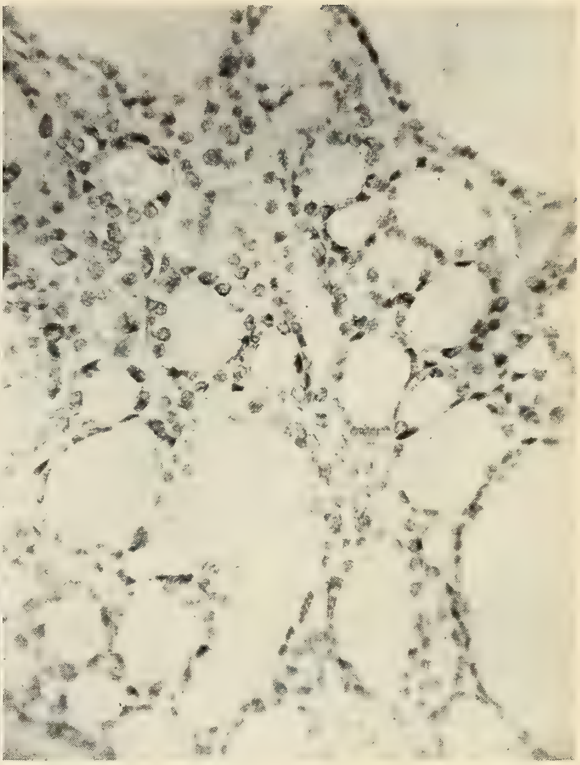

Fig. 3. Microscopic section under high power (200X) showing an area with small acini to show cell detail.

time. It is not easy to determine the etiology of the characteristic changes of adenomatous goiter in the tongue. The factors which cause this hypertrophy are probably the same as those causing the formation of a cervical thyroid adenoma.

Montgomery has stated that at least 90 per cent of the patients having a lingual thyroid nodule suffer from symptoms of pressure and obstruction such as dysphagia, dysphonia, and dyspnea. In our case, the most conspicuous symptom was dyspnea. She also had recurrent small hemorrhages, huskiness of voice, and a chronic irritable cough. The patient herself described the sensation of the presence of a tumor causing fulness and a feeling of tightness in her throat. She did not have pain. Because of her chronic cough, she was treated for "bronchitis" over a long period of time. She was also treated for some mysterious allergy. This patient had never had a basal metabolism test but her history revealed that she had a mild hypothyroidism. We were able to palpate the gland as described in the case history. The tumor had been described by an otolaryngologist as a tumor of the epiglottis. The diagnosis of lingual thyroid had not been made.

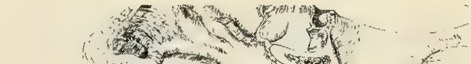

Fig. 4. Saggital section showing position of lingual thyroid.

The fact that this patient had been operated upon for this disturbance thirty-eight years ago made it easier for us to make a diagnosis. After palpating and visualizing the mass, we were certain we were dealing with a lingual goiter. Because she had had a hemorrhage upon the previous attempt at removal, because the operation could not be completed, and because she had to have a tracheotomy at that time, we felt that we should remove this tumor by going through the neck in the region of the hyoid bone. We followed the technique devised by Sistrunk for the excision of thyroglossal duct cysts (Fig. 5). This approach, together with intratracheal anesthesia, made it possible to remove this large mass deliberately and with safety.

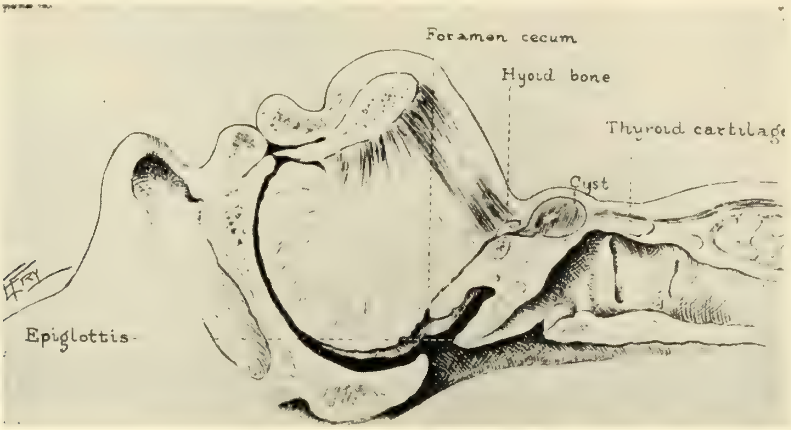

Fig. 5. Saggital section to show the operative approach used in this case.

One of the most interesting phases of this case was the fact that the patient developed advanced symptoms of hypothyroidism within six weeks of the operation. It had not occurred to us to discuss the possibility of the development of hypothyroidism to this patient. When she again appeared at the office about six weeks postoperatively, she was tired, had edema of the lids, dry skin, a marked slowness of speech, chilliness and all symptoms of postoperative myxedema.

The patient has now been observed for more than a year. She is taking 4 grains of thyroid extract daily, and is in excellent health.

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Dr. E. M. Hammes, Saint Paul, gave a report on the Fourth International Congress of Neurology held in Paris, September 5-10, 1949.

THE FOURTH INTERNATIONAL CONGRESS OF NEUROLOGY

ERNEST M. HAMMES, M.D.
St. Paul, Minnesota

The Fourth International Congress of Neurology was held at Paris in Faculté de Medicine Building, September 5 to 10, 1949. Twenty-six countries had been invited; twenty-three representatives attended. Australia did not send any official representative. Russia and Yugoslavia did not even acknowledge the invitation, although the Russian language had been made one of the official languages, along with English, French and Spanish. The majority of the scientific papers were read in English and French. The attendance was about twelve hundred; over one hundred and fifty were from the United States of America.

Each morning session from 9:30 to 12:30 was devoted to a single important subject: on Monday, encephalography; on Tuesday, the various problems of the thalmus; on Thursday, virus infections of the central nervous system; on Friday, neurosurgery for relief of pain. Saturday forenoon was a general farewell meeting, where Pierce Bailey, of Washington, D. C., discussed "Current Trends in Neurology in the U. S. A."

The morning sessions were well conducted and the subjects scientifically presented by outstanding men in their particular fields. On the afternoon programs there were seven to ten papers in each section, averaging about one hundred papers each afternoon. No time limit was kept on either the essayist or the discussor. As a result, there was considerable confusion during the afternoon sessions, and one could not rely on the time table of the program for any definite paper. One hundred and seventeen American neurologists presented papers of variable scientific value.

On Wednesday forenoon the entire group visited the Salpétriere Hospital. This is one of the most renowned neurological hospitals on the continent. In this hospital, in the 18th Century, Pinel, was the first physician to remove the chains from mental patients and treat them as sick human beings. In this same hospital, Charcot of the Charcot-joint fame, was able to hypnotize an entire ward full of patients at one time, because of his powerful personality and hypnotic influence.

On Tuesday evening, Dr. W. Penfield of Montreal, gave an excellent discussion on "Cerebral Localization of Function." These studies were made in the course of routine craniotomies on patients under local anesthesia, by direct stimulation of the cortex with electric currents. Among other things, he was able to demonstrate a secondary sensory representation in arms and legs on the superior lip and superior bank of the Fissure of Sylvius. On Thursday evening, Dr. Penfield gave another very stimulating address on "Localization and Clinical Classification in Focal Epilepsy." In the course of a craniotomy, he would attempt to localize the focal lesion by electrical stimulation which would initiate the convulsion. He then would surgically remove this particular area with any abnormal brain tissue or scar, with satisfactory results in some cases.

The Symposium on Encephalography was presented by Bremer of Brussels, Jasper of Montreal, and Hill of London. Their presentations were very conservative and emphasized the fact that electroencephalography should be considered only as a diagnostic aid, similar to other laboratory tests. The greatest value was in the diagnosis and investigation of the epilepsies, both essential and symptomatic. Second in importance is its aid in evaluation of the localization and severity of cerebral damage following traumatic head injuries. Next in importance is the diagnosis and localization of expanding intracranial lesions (tumors and abscesses) but only by competent and experienced personnel, using the most recently developed localization methods. Pneumoencephalography is still considered more accurate and more reliable. In cerebral vascular lesions and inflammatory and degenerative disorders, electro-encephalography is of questionable value.

The Tuesday forenoon discussion of the thalmus again demonstrated the specific functions of the various cells groups in the brain. One of the most important functions of some of these cells groups in the thalmus is that of sorting stations for the segregation and recombination of afferent impulses so as to form specific sensory patterns which are then referred to the cortex. This excellent symposium was presented by LeGros Clark of Oxford, Hess of Zurich, and two other French authors. Dr. Hess, later on, was given the Nobel Prize for his original contributions and studies.

The viral infections of the human nervous system were discussed by Sabin of Cincinnati, Hammond of San Francisco, Lepine of Montreal, and Gard of Stockholm. The classification of diseases and known viruses, in part, was as follows:

Viral Infections of the Human Nervous System

(Classification Based on Information Available in 1949)

A. DISEASES AND VIRUSES KNOWN.

I. Basic reservoir in human beings; worldwide in distribution.
    1. Sporadic and epidemic: poliomyelitis.
    2. Sporadic:
        mumps (parotitis)
        herpes simplex.
        lymphogranuloma venereum.

II. Basic reservoir extra-human; few widespread, most limited in distribution.
    1. Arthropod-borne encephalitides:
        St. Louis
        Western equine
        Eastern equine
        Venezuelan equine
        Japanese B.
        Russian tick-borne (Louping ill?).
    2. Transmitted by animal secretions or excreta:
        rabies
        lymphocytic choriomeningitis
        (pseudolymphocytic choriomeningitis?).
        B virus (monkey)

B. VIRUS ETIOLOGY POSSIBLE, BUT VIRUSES LITTLE KNOWN OR UNKNOWN.

Von Economo's encephalitis lethargica.
Herpes zoster
Australial "X" (may have been Japanese B).

C. DISEASES SOMETIMES GROUPED WITH VIRUS INFECTIONS WITHOUT ADEQUATE EVIDENCE.

Infectious polyneuritis (Guillain-Barré syndrome).
Postinfection and postvaccination (demyelinating) encephalitis: measles, varicella, rubella, vaccinia, variola, mumps, "influenza," et cetera.
Acute hemorrhagic encephalitis.

The Symposium on Neurosurgery for the relief of intractable pain was divided into the surgical section of pain tracts and pathways in the spinal cord for the relief of pain in the trunk and extremities, trigeminal tractotomy for trigeminal neuralgia, prefrontal leucotomy and topectomy by cutting the frontothalamic fibres. In an attempt to relieve severe attacks of migraine, Rowbotham of England, described some surgical precedures, such as excising or ligating various cranial blood vessels, with uncertain results and no definite conclusion. The entire meeting was very stimulating and it was interesting to see and meet some of the internationally famous neurologists and neurosurgeons.

The meeting was adjourned.

A. E. Cardle, M.D.
Secretary

SOCIALIZED MEDICINE AS I SAW IT

(Continued from Page 162)

as a truly expert form filler and it is my sincere hope that one day I may be able to make some further use of this most doubtful acquisition.

I felt that I had had enough of this sort of government medicine and I made my decision to make a clean break—and I would make the same decision tomorrow. But I would urge you all to consider the implications for you and for all the people of this country in what I have said. The physicians of this country have the same hopes and the same ambitions as I have, the same hopes and ambitions which forced me to take the action that I took. Let us hope that none of them here are ever forced to make the same decision.

Insurance Economics, January, 1950

Minneapolis Surgical Society

Meeting of October 6, 1949

Ernest R. Anderson, M.D., Presiding

FRACTURE DISCOURSE

EARL C. HENRIKSON, M.D., MAYNARD C. NELSON, M.D., and DANIEL MOOS, M.D.

Minneapolis, Minnesota

Dr. Nelson: This talk of ours will deal with a few common fractures of the humerus. We would like it to be informal and invite you to participate in the discussion. By that I don't mean for you to wait until we finish talking. Interrupt us at any time. Don't save your comments.

As some of you may know, Dr. Henrikson, Dr. Moos and I have put on this conference, or whatever you want to call it, at various places throughout the state for the last two or three years. The idea for this method of presentation evolved from the Fracture X-Ray Conference held each week at the Minneapolis General Hospital. We first started to use it, and still do, in teaching the medical students at the University. I think it is quite a valuable teaching method. It is very informal, and so far at least, it has kept our listeners interested and kept us on our toes.

(*First slide*) This is the run-of-the-mill variety of supracondylar fracture of the elbow and is the most common of all elbow fractures in children. This fracture is, for the great part, extra-articular. I would think that 90 per cent of these fractures can be reduced by traction and manipulation and then the reduction maintained by one of several different methods depending on which one you favor. Personally, I like a posterior molded plaster splint. You may like something else. The methods of reduction differ in some respects. For instance, some men favor extending the arm and some even hyperextend the arm. I like to keep the arm in the position it is in when I first see the patient. This usually is about half way between a right angle and a straight line. Leave the arm in that positon and then apply traction so that you will not add to the injury of the soft parts.

(*Second slide*) In the arm shown in this slide there was a great deal of swelling. After the reduction was obtained, the elbow could be flexed only to 90 degrees, and when the swelling went down, the fracture slipped out of position as shown in this next slide.

(*Third slide*) This slide shows what happens to endanger the vessels in this fracture. The vessels and median nerve are underneath the fascia at the elbow. The distal fragment carries them back across the sharp edge of the proximal fragment. If you flex the arm without first bringing the distal fragment forward, you are apt to pinch the nerve and vessels.

(*Next slide*) Here is the re-reduction of the first fracture and shows now instead of the right angle position one of about 45 degrees of flexion. In this position the triceps is taut over the back of the elbow and so holds the small distal fragment in reduction.

Dr. Moos: What are the criteria of reduction of this fracture? How do you know whether there is reduction? What do you look for on the x-ray plate?

Dr. Nelson: The most valuable x-ray view is the lateral. If the articular surface of the humerus is about one-third anterior to a line dropped along the anterior aspect of the humerous, it is in the proper position.

Dr. Henrikson: How many times would you remanipulate it?

Dr. Nelson: That is an individual thing. For this particular fracture, I don't think it makes any difference. If the fracture is farther down towards the joint, I don't think you should manipulate more than once.

Dr. Moos: If you have a swollen elbow, how do you know how much flexion to put it in?

Dr. Nelson: You feel the radial pulse and flex the elbow as far as possible without obliterating the pulse, then immobilize it there. I use a posterior molded plaster splint to maintain this position. Thereafter the arm is closely observed and as the swelling decreases, you can increase the flexion of the elbow without endangering the radial pulse.

Dr. Moos: How long does it take this fracture to unite?

Dr. Nelson: It unites very rapidly. Usually after about ten days you can start active motion. Take it out of the splint several times a day for active exercises within the limits of pain. Union is quite solid after three or four weeks.

Dr. Henrikson: Do you put it in a sling?

Dr. Nelson: Yes, a sling or a collar and cuff strap apparatus.

(*Next slide*) This is a dicondylar or transcondylar fracture, the type that I don't think should be manipulated more than once.

Dr. Moos: What would you do with this fracture if you saw it and couldn't feel the pulse?

Dr. Nelson: Try to reduce it immediately by traction and manipulation.

Dr. Moos: What kind of anesthesia would you use?

Dr. Nelson: If the radial pulse is not palpable, I wouldn't use any.

Dr. Moos appeared by invitation.

Dr. Henrikson: Would you send the patient to the hospital?

Dr. Nelson: No, treat the patient immediately. You had better get busy right away, because this is a very serious complication.

Dr. Horace Scott: What anesthesia would you use in the hospital?

Dr. Nelson: This depends on the treatment you use. If you are going to manipulate this fracture, I think a general anesthetic is best.

Dr. Henrikson: Supposing the patient had just had supper. Would you do it then or wait until the next day?

Dr. Nelson: In some hospitals they pump the stomach. I wouldn't stop for that—use the anesthetic and let the patient vomit when he wakes up.

Dr. Lerner: Would you use skeletal traction?

Dr. Nelson: I have used it for this fracture in an adult but not in a child.

(*Next slide*) These are x-rays of the fracture just shown after it was placed in traction. You will notice it is slightly overpulled but reduction on the lateral film is pretty good.

(*Next slide*) This shows an x-ray taken a little farther along, about the time this case was ready to be taken out of traction and placed in a sling or splint.

Dr. Moos: It has been my observation that when I use traction in this type of fracture and get reduction but have some overpull, it takes longer for this fracture to heal.

Dr. Nelson: That has been my experience too. I remember one I had in traction with a little overpull. I treated it just like an ordinary case and at about five or six days took it out of traction and put a splint on and thought this would be all right. However, the x-ray showed that the fragments had slipped out of position and the patient had to be put back in traction. That patient was in traction eighteen days before union was solid enough so that a splint could be applied. The ordinary case you can take out of traction in five or six days.

(*Next slide*) This picture shows the type of traction we usually use for a child. The child is in bed with the edge of the bed raised a little bit for counter-traction. Stockinette is glued to the forearm with Ace adherent and forward pull on the distal fragment obtained as shown. There is a little pull backwards on the proximal fragment, the shaft of the humerus, by means of a felt sling which also is stuck to the skin with Ace adherent so that it won't shift.

Dr. Moos: How do you keep the patient from falling out of bed?

Dr. Nelson: The side of the bed is raised.

Dr. Moos: I think that's an important point. Sometimes all you need do to obtain reduction is to suspend the arm out from the side of the bed, if the side of the bed is raised.

(*Next slide*) Here is a closer view of this type of traction showing the stockinette extending up beyond the fingers to a spreader-block attached to the rope over the pulley.

Dr. Moos: Will placing this fracture in this type of traction reduce the fracture?

Dr. Nelson: Nearly so. I usually give these youngsters some sedative, then apply the traction and wait several hours, after which time most of them will be reduced. If not, give them a little more sedative and manipulate them right in the traction apparatus.

Dr. Moos: How many x-rays would you take in the first week?

Dr. Nelson: One every day for four days or so, and then the interval between check x-rays gradually increases.

Dr. Henrikson: Would you leave the arm in the same position while in traction or keep flexing the arm?

Dr. Nelson: I increase the flexion as the swelling goes down.

(*Next slide*) This view shows the spreader to which the stockinette is fastened.

Dr. Henrikson: We will now consider fractures higher up the humerus in various parts of the shaft. Here is a slide showing a slightly comminuted and slightly oblique fracture near the middle. There is no shortening so traction isn't needed except to keep the fragments in proper aligment.

You certainly don't need skeletal traction in a fracture of this type. You could use tape traction with the patient lying in bed. The arm would be abducted lying parallel to the top of the mattress. The forearm would be flexed at right angles to the arm with the fingers pointing to the ceiling. About 5 pounds attached to tapes applied to the arm would be adequate to keep the fragments in aligment. Tapes applied to the forearm extend up over the wrist to a pulley and a weight heavy enough to balance the forearm keeps it in comfortable position.

(*Next slide*) This shows the x-ray picture of the fracture at three and one-half weeks. You can see good callus already forming. At this time the arm can be placed in a sling or in a hanging cast. A sling will allow satisfactory motion at both the elbow and shoulder. Exercising of both joints is very important to prevent stiffness and muscular atrophy. If the patient is taught by the surgeon how to exercise, special physical therapy elsewhere would not be necessary.

Dr. Nelson: I always thought that fractures should be well immobilized—that the joint above and below the fracture should be stabilized.

Dr. Henrikson: Yes, in the not too distant past we would put patients like this in a big heavy body cast with the arm abducted, but lately the trend is to keep the shoulder moving. The fracture heals here in most cases in spite of the lack of fixation.

Dr. Moos: Well, I take exception. I grant you that in the humerus you can do that but—

Dr. Henrikson: You don't immobilize the elbow in Colles' fracture, the knee in Pott's fractures, the shoulder in supracondylar fractures in children, do you? Well, anyway here's the next slide showing a long spiral fracture rather high on the shaft. You could treat this one in bed just like we did the last one, but here we decided to use the hanging cast.

Dr. Nelson: Do you think a spiral fracture heals faster than an oblique?

Dr. Henrikson: It becomes stable faster because of the wider extent of the callus. Here you will notice in the next slide that using a hanging cast doesn't seem reasonable because the upper margin of the cast doesn't even extend over the upper part of the fracture.

Dr. Scott: Why wouldn't you do an open operation?

Dr. Henrikson: Most people and women especially don't want a scar on their arm. They all would like to avoid an operation if possible. Here because of interposed soft parts we finally had to operate.

Dr. Moos: Explain the surgical approach especially with regards to the radial nerve. What do you do with it?

Dr. Henrikson: To avoid the nerve we try to keep close to the bone with our instruments. Notice in this next slide what was done. The approach is anterolateral between the pectoralis major and deltoid muscles avoiding the cephalic vein along the margin of the deltoid. Continue downward along the lateral border of the biceps muscle to the brachioradialis muscle. Expose the brachialis muscle by retracting the deltoid laterally and the biceps medially. Then split the brachialis longitudinally all the way down through the periosteum to expose the bone. The radial nerve will be in the posterior half of the brachialis muscle, so retract carefully so as not to injure it. Free up only as much periosteum as is absolutely necessary to get at the fracture site. This next slide shows the site nicely exposed, a clamp holding the bones reduced, and holes being drilled for screws. You don't have to use a plate in a spiral fracture of this type, as four, five, or six screws alone will hold well. The next slide shows Collison screws being put in.

Dr. Moos: What about the cortices? Should the screw penetrate both cortices? Should the threads catch in the proximal as well as the distal cortex? What is the best way to put screws in?

Dr. Henrikson: The drill should be a size smaller than the screw and should go through both cortices. The screw threads should have good purchase in both cortices, the tip protruding all the way through the distal cortex.

Dr. Moos: Do you use a body cast after completing the operation?

Dr. Henrikson: No. All we do is apply a well-padded posterior molded splint from the wrist to the area over the scapula where it is fanned out rather widely. The arm is in the position it would be when in a sling, which is applied when the plaster is set. Tensor bandages are used to hold the splint on the extremity and the shoulder area. A few days later the plaster is removed, exercises of the shoulder and elbow are begun, and the cast and sling reapplied until next physical therapy period. The plaster mold is kept on between times for three or four weeks or until the callus looks firm.

Dr. Nelson: Would you suggest a sling all that time?

Dr. Henrikson: Yes.

Dr. Moos: What about special exercises for these patients?

Dr. Henrikson: While the splint and sling are off, the patients are taught to lean over as far as possible with the extremity hanging loosely downwards. Then in order to get good shoulder action they are told to aim the index finger at the floor and make large imaginary O's, X's, and figure-of-8's. They are told to flex and extend the elbow and to put the wrist and fingers through full ranges of motion many times daily. They are up and about the day after operation and home in a week.

Dr. Nelson: If this were associated with radial nerve paralysis, what would you do with the nerve? Explore it?

Dr. Henrikson: To what type of case do you refer? A compound fracture, a simple fracture with wrist drop or what? One should always examine the patient for signs of nerve injury such as weakness or paralysis or sensory changes.

Dr. Nelson: What would you do if such things were found?

Dr. Henrikson: If I were going to do an open reduction anyway, I would surely look to see if the nerve were actually cut, but wouldn't be too radical in my search for it if the findings didn't seem to indicate severance from the appearance of the muscle in which it lies. We have a patient up and around in the wards now whose transverse fracture of the humerus I plated several weeks ago. He had a wrist drop, but the brachialis and brachioradialis muscles weren't lacerated, and I could see no signs of a cut nerve on gingerly exploring the site. The injury to the nerve must have been only a contusion because function and sensation are returning nicely.

Dr. Moos: I agree with you. When you expose the bone, and the periosteum and muscle are intact, and you don't see the radial nerve in front of you, you can reasonably assume that the injury to the nerve was a contusion and will recover.

Dr. Culligan: Would you make the same incision if you had a radial nerve paralysis?

Dr. Henrikson: No, I wouldn"t. I would carry it down further over the brachioradialis, then search for it there and work upwards on it.

Dr. Hays: It is important to repair the radial nerve early.

Dr. Henrikson: What do you mean by early repair —immediate? Three weeks? Three months? You know that even just exposing the nerve at the time of open reduction will sometimes cause paralysis.

Dr. Hays: Well, that will come back.

Dr. Henrikson: Yes, that's the point. So will most of those associated with fractures, so shouldn't you wait a while in these cases to see if function won't come back? In compound fractures with nerve injuries, I think the tendency is to wait three weeks or so before suturing the nerve, although with penicillin, sulfas, streptomycin, et cetera, maybe we need not worry about infection as much as in the past. Some advise waiting three or four months. The longer you have to wait, the poorer your chances for a good result however.

Dr. Nelson: If you operate later rather than at once, you can work in a cleaner, drier field and get better hemostasis. I always thought that results in the repair of the radial nerve were pretty good, but that is not true in the repair of the median and ulnar nerves because they are associated with the finer motions.

Dr. Henrikson: Well the question as to when is the best time will take a long time to work out. Ten years from now we'll still be arguing about the same thing. Here is a slide showing another spiral fracture. This fracture was treated in a hanging cast. The next slides show the alignment to be good.

Dr. Moos: It is difficult to get a good lateral x-ray of the humerus when in a hanging cast.

Dr. Henrikson: This was taken through the chest with the uninjured arm raised and the injured arm against the plate. The following slides show how to correct displacements when using the hanging cast. For posterior angulation you lower the forearm by loosening the loop around the neck. For anterior angulation you raise the forearm by tightening the loop. For lateral angulation you place a large rubber sponge down by the elbow, while for medial angulation you place the sponge high up near the axilla. For shortening you tie a weight in the loop of plaster beneath the elbow. For over-pull you support the cast lightly in a sling. The sling will also correct the occasional tendency to subluxation of the shoulder joint.

The cast works best in the ambulatory patient in fractures in the lower two-thirds of the humerus including T and Y condylar fractures provided the articular surfaces are in good alignment.

The patient must be warned not to rest the cast on chair arms or pillows. At night the cast is hooked up to weights attached to the plaster loops to balance it in a comfortable position. The cast is removed in from four to eight weeks depending on whether callus is adequate to prevent displacement. A sling is used an additional four to eight weeks as needed.

Dr. Moos: I would like to present a simple method for handling fractures of the surgical and anatomical neck of the humerus which occur in the older age group. We feel that the primary purpose in treatment of these fractures in the patient who is over forty-five or fifty years of age is restoration of function and not complicated strenuous maneuvers designed to obtain good anatomical reduction of the fracture at the expense of soft tissue atrophy and ligamentous contracture. We know that practically all fractures in this region will unite almost regardless of what position they may be in. We also know that healing of these fractures in a relatively poor anatomical position is often commensurate with good function at the shoulder joint if normal ligament and muscular elasticity and tone are preserved. We also know that if you immobilize the shoulder of any individual in the older age group, varying amounts of limitation of motion at the shoulder joint will occur. We have all had the experience of seeing individuals develop almost complete limitation of motion at the shoulder joint when for one reason or another the arm was allowed to remain at the side for periods longer than ten days or two weeks.

About ten years ago at Minneapolis General Hospital a review of all cases of this type of fracture showed rather disappointing results in terms of function at the shoulder joint when the older individuals were considered. For that reason the time-honored methods of traction, abduction, airplane splints and even shoulder spicas were largely discarded in favor of a simple routine consisting of initial immobilization in a well-fitting Velpeau bandage which was allowed to remain in place only during the period of acute pain, extravasation of blood and muscular spasm. Depending upon the severity of the fracture, the immobilizing bandage was replaced by a sling with a small pillow between the elbow and chest wall in anywhere from three to ten days. At the same time physical therapy consisting of circumduction exercises with some radiant heat and light massage was encouraged. The exercise was increased in amount and duration rapidly. Care was employed not to allow pain to be produced by the maneuver and passive motion was strictly contraindicated. At about four weeks, in the average fracture, the sling was gradually discarded and the patient encouraged to begin active abduction exercises against gravity using the wall-ladder and shoulder-wheel. Again passive motion was strictly forbidden, and the yardstick of pain was used for measuring the amount of exercise permissible at any given stage. By the eighth week all limits were removed. We have been gratified to find that this program has greatly simplified handling this particular fracture and was followed by better and earlier return of function than when older, more conventional methods were employed.

(A series of slides were shown demonstrating a fracture of the surgical neck of the humerus, application of a Velpeau bandage, circumduction exercises and the use of the wall-ladder and shoulder-wheel.)

Dr. Nelson: How long would you immobilize a fracture of the surgical neck of the humerus in a person seventy years old?

Dr. Moos: Ten days or less, depending upon the initial severity of the acute reaction to injury.

Dr. Nelson: How many safety pins would you use to fix a Velpeau bandage in place?

Dr. Moos: At least twenty-five to thirty safety pins. If you do not use enough, the bandage will rapidly slip and defeat its purpose.

Dr. Culligan: When do you start motion in the average shoulder fracture?

Dr. Moos: The maximum period during which we allow the shoulder to be immobile is ten days. In the specific case the period depends on the patient, the type of fracture and the amount of hemorrhage. I would say the average is from seven to ten days.

Dr. Nelson: An important point in circumduction is that the patient should be made to understand that his arm be absolutely relaxed so that motion may actually occur at the shoulder joint and not be scapular. We tell these people to imagine that their hand is a stone and their arm is a string. Then they are encouraged to swing the stone as a pendulum. It is necessary to reassure the patient and relieve him of fear.

Dr. Henrikson: What would you do if you had a fracture through the anatomical neck from which the head was dislocated? Would you take it out?

Dr. Moos: I don't think so. By manipulation and the use of temporary skeletal traction a replacement of the head may often be effected. Even though the head might be upside down or in poor relation to the shaft, results by conservative treatment and early motion are as good in our hands as excision of the head. I would be inclined, however, to excise the head of the humerus if it remained in an extracapsular position unless some other contraindication existed.

Dr. Nelson: Will you explain the lateral x-ray view of the humerus?

Dr. Moos: This view is taken through the chest from the opposite axilla with the good arm abducted out of the way. As far as I am concerned this is the only view of the neck of the humerus in the lateral plane which one can readily interpret and get something out of.

Dr. Chisholm: What is your experience with the Kuntscher intramedullary nail?

Dr. Moos: At the present time we use it in fractures of the femoral shaft. We have not used it in fractures of the humerus. I have been pleasantly surprised in femoral fractures at the ease of insertion, solidity of fixation and the freedom of motion in the extremity which follows its use.

Dr. Nelson: There was an article or two in some recent literature recommending the Kuntscher nail fixation for pathological fractures. You have a case of pathological fracture in the femur now. Do you intend to use a Kuntscher nail?

Dr. Moos: Yes, I plan to use it as a palliative procedure. Pathological fractures in the femoral shaft are often very difficult to handle. I feel that with the use of an intramedullary nail these fractures can be made solid and the patient rendered much more comfortable by freeing them from necessity of bed rest, skeletal traction and a Thomas splint. Certain pathological fractures are associated with spasmodic muscular twitching. This is particularly troublesome, and the fracture can be well controlled by intramedullary fixation.

Dr. Scott: In fracture-dislocations of the elbow joint associated with fracture of the head of the radius with displacement, do you treat these conservatively or do you take the head of the radius out after the dislocation has been reduced?

Dr. Nelson: If the head of the radius is comminuted and the elbow dislocated, I think you should operate as soon as possible through an anterior incision, removing the radial head. All you have to cut is the skin because the lower end of the humerus has torn through the brachialis muscle and lies right under the skin. The wound should be well washed out with saline, and hemostasis should be complete. The dislocation should then be reduced and the operative wound closed. With that particular treatment you obtain a good result based on elbow motion in nine out of ten cases. If you go in laterally on this type of case, your result will be uniformly bad.

Dr. Scott: If the head of the radius is not comminuted but a greenstick fracture is present, what would you do?

Dr. Nelson: Usually you can reduce a greenstick fracture of the neck of the radius by thumb pressure. If this is unsuccessful, go in through a lateral incision and correct the deformity. Internal fixation is not necessary.

Dr. McGandy: Dr. Hays has had an interesting experience at Oak Ridge, Tennessee, concerning the use of radioactive material in healing of fractures.

Dr. Hays: I treated a man at Oak Ridge, Tennessee, who had a fracture of the femoral shaft and several fractures in the right forearm. These fractures were slow in healing. It was suggested to us that some radioactive material be administered parenterally. This was done and followed by astonishing results. The femur became quite solid within four weeks after the treatment was begun. Further experimentation on rabbits definitely demonstrated greatly increased rapidity of healing. In my case several days before the patient was ready to be discharged, jaundice occurred. It was the final opinion of the medical service that this may have been due to liver damage from the radioactive substance. For that reason no further use of the material has been carried out.

Dr. Scott: Have any bone sarcomas occurred?

Dr. Hays: Not to my knowledge.

Dr. Webb: *(Comments on American College of Surgeons movie concerning the treatment of fractures)* I first saw this film in Boston in January, and it was generally agreed that the plaster splint shown for Colles' fracture should be cut back to the proximal palmar crease in order to allow proper finger motion. I think the sugar-tong splint should be explained. When a Colles' fracture occurs which is unstable, it is necessary to get a firm hold of the carpals and metacarpals distally. Proximally the ulna is fixed. However, there is no control over the upper end of the radius unless pronation and supination are prevented by carrying a sugar-tong plaster around the elbow joint.

Dr. Chisholm: Some interesting work at the Peter Bent Brigham Hospital has been done by Drs. Ward and Swanson who have been studying fractures for several years. They fractured rabbits' and dogs' legs and removed some of the fracture hematoma, from which a phosphatase concentrate was made. When this was instilled into other experimental fractures, acceleration of union was noted. I believe that it has already been used in a number of adult humeral shaft fractures with good result.

ASSOCIATED DISEASES OF THE SKIN AND EYE

(Continued from Page 153)

Summary

Some of the more interesting diseases that have common ophthalmologic and dermatologic findings have been presented. Those conditions associated with systemic diseases, such as syphilis and tuberculosis, and the endocrine and metabolic disturbances have been omitted, since a discussion of these subjects is beyond the scope of this paper.

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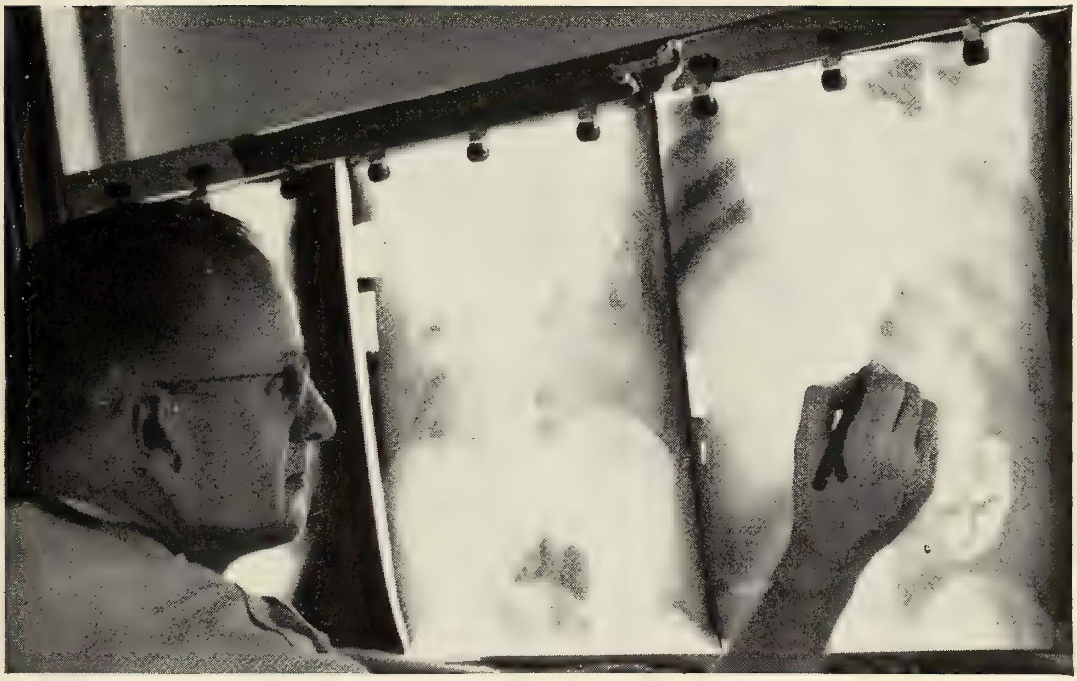

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PRIZE ESSAY AWARD

The Board of Regents of the American College of Chest Physicians offers a cash prize award of $250 to be given annually for the best original contribution, preferably by a young investigator, on any phase relating to chest disease.

The prize is open to contestants of foreign countries as well as those residing in the United States. The winning contribution will be selected by a board of impartial judges, and the first award will be made at the forthcoming annual meeting of the College to be held in San Francisco, June 22 to 25, 1950.

The College reserves the right to invite the winner to present his contribution at the annual meeting, and to publish the essay in its official publication *Diseases of the Chest.* Contestants are advised to study the format of *Diseases of the Chest* as to the length, form and arrangement of illustrations to guide them in the preparation of the manuscript.

The folllowing conditions must be observed:

1. Five copies of the manuscript, typewritten in English, should be submitted to the office of the American College of Chest Physicians not later than May 1, 1950.
2. The only means of identification of the author or authors shall be a motto or other device on the title page and a sealed envelope, bearing the same motto on the outside, enclosing the name of the author or authors.

Additional information may be obtained from the executive secretary of the College, 500 North Dearborn Street, Chicago 10, Illinois.

AMERICAN GOITER ASSOCIATION

The American Goiter Association will hold a meeting in the Shamrock Hotel, Houston, Texas, March 9, 10 and 11, 1950.

The program for the three-day meeting will consist of dry clinics, demonstrations, and papers dealing with goiter and other diseases of the thyroid gland.

INDUSTRIAL HEALTH CONFERENCE

The thirty-fifth annual conference of the American Association of Industrial Physicians and Surgeons will be held with four other groups—the American Conference of Governmental Industrial Hygienists, the American Association of Industrial Nurses, and the American Association of Industrial Dentists, at the Sherman Hotel, Chicago, April 22-29, 1950.

More than 100 papers will be read at the eight-day meeting, which will be the nature of a postgraduate course. Some of the subjects to be discussed will be: toxic effects of materials used in industry, accident hazards, treatment of injuries, interpretation of x-rays in industrial cases.

Additional information may be obtained from Dr. F. W. Slobe, 425 North Michigan Avenue, Chicago, Illinois.

MINNESOTA SOCIETY OF NEUROLOGY AND PSYCHIATRY

A special meeting of the Minnesota Society of Neurology and Psychiatry was at the Town and Country Club in Saint Paul on February 7. Dr. A. Earl Walker, professor of neurological surgery, Johns Hopkins University, was the guest speaker. He addressed the society upon the subject, "Posttraumatic Epilepsy."

E. STARR JUDD LECTURE

The seventeenth E. Starr Judd Lecture was given by Dr. Henry K. Beecher, Dorr Professor of Research in Anesthesia, Harvard Medical School, on February 16 at the University of Minnesota. Doctor Beecher's subject was "Growth in the Field of Anesthesia: Some Problems in the Control of Pain."

The late E. Starr Judd, an alumnus of the Medical School of the University of Minnesota, established this annual lectureship in Surgery a few years before his death.

CONTINUATION COURSES

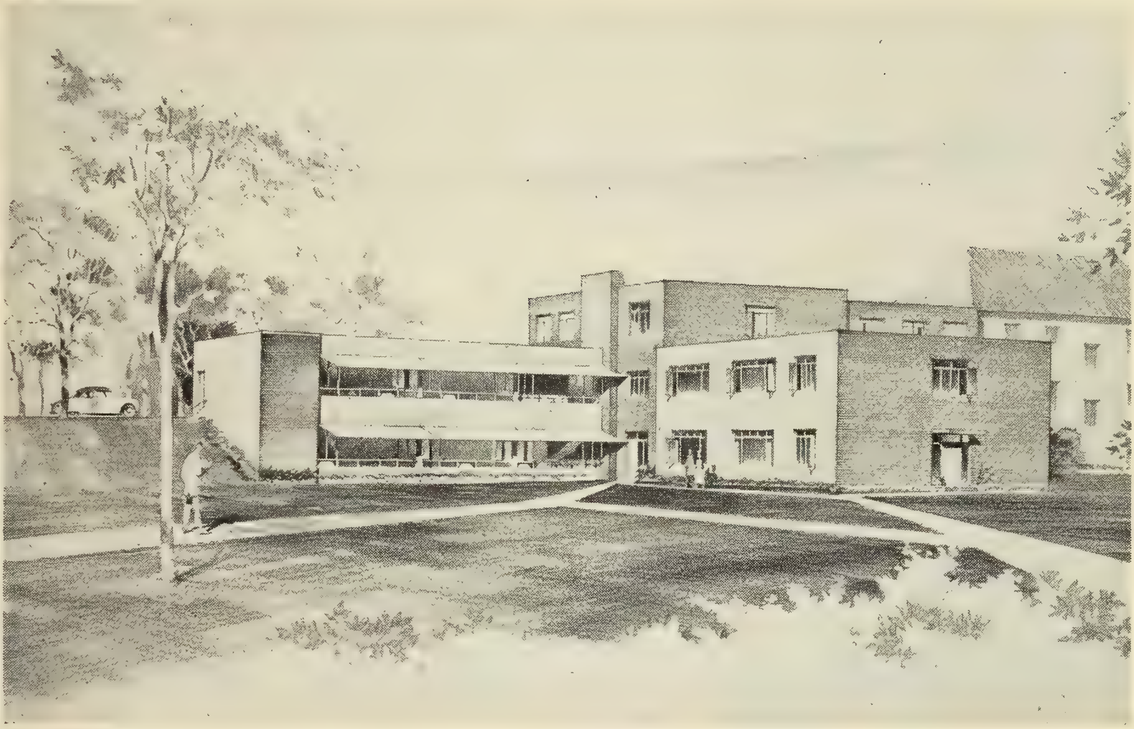
Gastrointestinal Diseases.—A continuation course in gastrointestinal diseases will be presented at the Center for Continuation Study of the University of Minnesota on March 6 to 8. The course is intended for general physicians and will emphasize the diagnosis and management of disorders of the gastrointestinal tract.

Among the subjects to be considered in the course will be a symposium on peptic ulcer, a discussion of the functional bowel syndrome, and the psychosomatic aspects of the gastrointestinal disorders, the x-ray diagnosis of gastrointestinal diseases, and a clinic on gastrointestinal disorders in pediatrics. Faculty for the course will include clinical and full-time members of the University of Minnesota Medical School and the Mayo Foundation.

Pediatrics.—The University of Minnesota announces a continuation course in pediatrics on April 10 to 12. This course, which will be presented at the Center for Continuation Study, is intended for physicians specializing in pediatrics and will be devoted to disorders of metabolism and endocrine function.

Distinguished visiting physicians who will participate as faculty members for the course are Dr. Daniel C. Darrow, Yale University School of Medicine, and Dr. George M. Guest, Children's Hospital, Cincinnati, Ohio. The remainder of the faculty for the course will be made up of clinical and fulltime members of the staff of the University of Minnesota Medical School and the Mayo Foundation.

(Continued on Page 194)



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CONTINUATION COURSES

(Continued from Page 192)

Symposium on Hypertension.—The University of Minnesota announces a symposium on Hypertension to be presented on the campus of the University of Minnesota on September 18 to 20 in honor of Dr. Elexious T. Bell, Dr. Benjamin J. Clawson, and Dr. George E. Fahr. Dr. Bell and Dr. Clawson retired from the department of pathology in June, 1949, and Dr. Fahr will retire in June, 1950, from the department of medicine.

A symposium on hypertension in honor of these men is appropriate since all three have had special interest in this disease. The symposium will bring to the University distinguished scientists from the United States and broad. Support for the symposium has been provided by the Variety Club, the Mayo Foundation and the University of Minnesota. All interested physicians will be welcome to attend.

BLUE EARTH COUNTY SOCIETY

At the annual meeting of the Blue Earth County Medical Society in Mankato, Dr. A. A. Schmitz was elected president of the organization.. Other officers named were Dr. R. W. Kearney, vice president, and Dr. O. H. Jones, secretary. All three officers are from Mankato.

CLAY-BECKER COUNTY SOCIETY

Dr. Allen Moe, Moorhead, was elected president of the Clay-Becker County Medical Society at its meeting in Moorhead on December 9. Dr. Arnold Larson, Detroit Lakes, was named vice president, and Dr. L. H. Flancher, Lake Park, secretary-treasurer.

Principal speakers at the meeting were Dr. Lyle French, Minneapolis, and Dr. F. C. Jacobson, Duluth.

FREEBORN COUNTY SOCIETY

Elected president of the Freeborn County Medical Society, at its meeting in Albert Lea on December 17, was Dr. M. O. Nesheim of Emmons. Other officers elected included Dr. C. E. J. Nelson, vice president; Dr. E. S. Palmerton, secretary, and Dr. R. A. Demo, treasurer.

RED RIVER VALLEY SOCIETY

At the annual meeting of the Red River Valley Medical Society in Crookston on December 9, Dr. Kenneth W. Covey of Mahnomen was elected president, to succeed Dr. George Sather, Fosston. Elected vice president was Dr. Donald E. Pohl, Crookston, and reelected as secretary-treasurer was Dr. R. O. Sather, Crookston.

ST. LOUIS COUNTY SOCIETY

At the annual meeting of the St. Louis County Medical Society in Duluth on December 8, Dr. O. L. McHaffie, Duluth, was named president-elect of the organization, to take office in 1951.

Dr. L. R. Gowan, Duluth, will serve as president during 1950. Dr. J. A. Malmstrom, Virginia, is the vice president for 1950, and Dr. C. H. Christensen, Duluth, is secretary-treasurer.

STEARNS-BENTON COUNTY SOCIETY

The January meeting of the Stearns-Benton County Medical Society was held in St. Cloud on January 19. The principal feature of the scientific program was a symposium on "Fractures of the Upper and Lower Extremities" presented by Dr. Maynard C. Nelson, Dr. Daniel J. Moos, and Dr. Earl C. Henrickson, all of Minneapolis.

WINONA COUNTY SOCIETY

Dr. H. J. Roemer, Winona, was elected president of the Winona County Medical Society at its annual meeting in Winona on January 9. Dr. Roemer succeeds Dr. F. J. Vollmer, Winona, in the office.

Other officers elected include Dr. Fred Roth, Lewiston, vice president; Dr. Hilmar Schmidt, Winona, secretary, and Dr. Philip Heise, Winona, treasurer. The latter two were re-elected to office.

As a result of intensive studies during the past few years, evidence has accumulated which suggests that histoplasmosis—formerly believed to be a rare and usually fatal disease—also exists as a mild asymptomatic syndrome which is very prevalent in certain parts of the world. Although quite typical cases of clinical histoplasmosis are probably much more frequent than previously thought, the principal significance of the asymptomatic form is that in certain respects the disease so closely resembles tuberculosis as to be frequently confused with it.—MICHAEL L. FURCOLOW, M.D., *Pub. Health Rep.*, November, 1949.

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UNIT PLANS FOR COMING YEAR

Mrs. R. J. Dittrich

Having arrived at the mid-point of their 1949-50 period of activity, members of the St. Louis County Medical Auxiliary feel they can look back on a successful first half, with more important plans for the future.

The first social event of the year was a tea planned by Mrs. S. N. Litman and held in the home of Mrs. L. R. Gowan. The Auxiliary entertained the wives of new doctors, residents and interns and also honored past presidents.

The Duluth group exceeded their quota by almost one hundred dollars at the annual rummage sale in October. Mrs. L. R. Gowan and Mrs. A. O. Swenson acted as chairman and co-chairman.

Instead of the usual White Elephant party, the Social Committee entertained the members with a Social Day at the regular meeting in November. Homemade cakes and preserves were raffled and the proceeds were added to the philanthropic fund.

At the December Board meeting, called by the president, Mrs. John K. Butler, the Auxiliary focused its attention on the serious problems that concern doctors' wives these days.

Beginning with the January 10 meeting at the Kitchi Gammi Club, the Auxiliary started with a study group at 11:30 a.m. This was patterned after the plan of the state workshop which was held in Minneapolis last fall. Dr. A. O. Swenson directed and acquainted them with the current problems of medicine, and two members led the discussion which followed. Mrs. G. A. Hedberg and Mrs. Karl E. Johnson were moderators for the month of January. At 12:30 luncheon was served, during which a résumé of what had been learned at the study period was presented.

At 1:30 the regular formal program took place which featured a talk on interior decorating by John Wendell Engstrom.

The annual dinner dance was given at the Kitchi Gammi Club, on January 28.

Mrs. R. H. LaBree and Mrs. F. T. Becker have charge of the program for the remainder of the year.

On Education Board

Mrs. Anderson C. Hilding, Duluth, member of the Woman's Auxiliary to the St. Louis County Medical Society, was appointed by Governor Luther W. Youngdahl to serve a five-year term on the State Board of Education.

Mrs. Hilding is a graduate of the University of Minnesota. The wife of Dr. Anderson C. Hilding, Duluth, she is the mother of five children.

NEW OFFICERS ELECTED

Mrs. C. W. Moberg

Mrs. James Oliver, Moorhead, was elected president of the Woman's Auxiliary to the Clay-Becker Medical Society for the coming year. Mrs. Thomas Buisclair, Detroit Lakes, was elected secretary-treasurer. Mrs. C. W. Moberg, Detroit Lakes, is the retiring president.

The Christmas sale held at the December meeting was a success. Proceeds were given to the patients of the Sand Beach Sanitarium to be used as spending money.

GROUP STUDIES BY-LAWS

Mrs. J. F. Norman

A set of revised by-laws was presented to the Red River Valley Medical Society Auxiliary at the meeting of December 9, 1949. Voting on the by-laws will be held at the annual meeting in the spring. Mrs. C. L. Oppegaard and Mrs. J. F. Norman presented the by-laws.

The club met at the home of Mrs. W. F. Mercil, Crookston.

Mrs. Oppegaard discussed a pamphlet on compulsory health insurance, "The Voluntary Way is the American Way."

New members include: Mrs. R. R. Hendrickson and Mrs. D. E. Pohl. Mrs. C. M. Adkins of Thief River Falls was an out-of-town guest.

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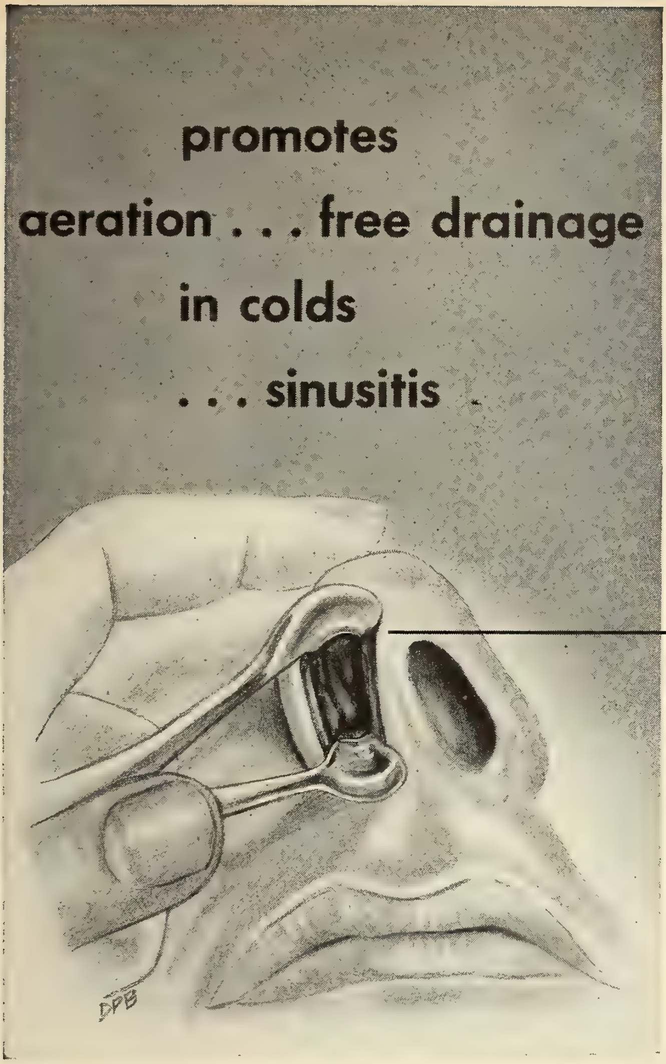

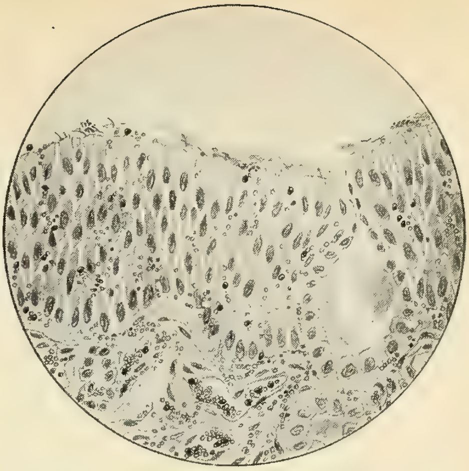

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In Memoriam

THAYER CLINTON DAVIS

Dr. Thayer C. Davis of Wadena passed away on November 17, 1949, at the age of sixty-two. He suffered from an attack of coronary thrombosis on July 20, 1942, which had restricted his activities in recent years.

Dr. Davis was born at Howard Lake, Minnesota, May 5, 1887. He graduated from the University of Minnesota Medical School in 1913 and interned at the City and County Hospital in Saint Paul. He practiced at Warroad, Minnesota, from 1914 to 1918 and at Glenwood from 1918 to 1922.

As an undergraduate he was a member of Alpha Omega Alpha and while residing in Wadena belonged to the Upper Mississippi Medical Society, the Minnesota State and American Medical Associations. He was active in civic affairs and was president of the First National Bank of Wadena.

Dr. Davis is survived by his wife; two sons, Dr. Thayer Davis, Jr., of Beaver Dam, Wisconsin, and Robert Davis of Cheyenne, North Dakota; and a brother, Dr. Thomas L. Davis of Wadena, with whom he had been associated in practice.

JOHN CHARNLEY McKINLEY

Dr. J. C. McKinley, formerly Professor of Neuropsychiatry and head of the Department of Medicine at the University of Minnesota Medical School, died following an illness of several years' duration, January 3, 1950.

John Charnley McKinley was born in Duluth, November 8, 1891. He attended West High School in Minneapolis and later the Horace Mann High School in New York City.

He attended the University of Minnesota where he obtained the degrees of B.S. in 1915, M.A. in 1917, M.D. in 1919, and Ph.D. in 1921. Five years of postgraduate study in anatomy and neuropsychiatry were taken at the university. He acquired membership in the societies of Sigma Xi and Alpha Omega Alpha during his student days.

Among other appointments, Dr. McKinley was secretary-treasurer of the Minnesota State Board of Examiners in the Basic Sciences. Neuropsychiatry was Dr. McKinley's special field and he held a professorship in this field at his Alma Mater.

The family's reaction and attitudes toward the patient's tuberculosis can have a decided effect upon the progress of his treatment. The members of the family, as well as the patient, need education as to the meaning of the disease and must be particularly aware of their role in enabling the patient to remain in the hospital until treatment is completed.—William B. Tollen, Ph.D., *VA Pamphlet 10-27*, October, 1948.

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◆ Of General Interest ◆

The treatment of herpes zoster in the past has been symptomatic and has consisted largely of pain-killers. On the whole it has been highly unsatisfactory.

For the benefit of readers who failed to see the report by Binder and Stubbs of the dramatic results obtained with aureomycin in the treatment of four cases of herpes zoster, we mention their findings: Aureomycin, in 500 mg. doses every six hours for two days, caused marked relief from pain within twenty-four hours in three of the four patients and moderate relief in the fourth.

The trial of this new "wonder-drug" for this painful affliction would seem well worth while.

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Dr. Richard W. Maertz, after practicing in Goodhue for several years, has moved to Faribault and opened offices in the Security Bank Building.

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In New Prague, **Dr. Charles F. Cervenka** has moved his offices into a new medical-dental office building. Construction of the one-story building, which was erected by Dr. Cervenka and Martin A. Rathmanner, D.D.S., was completed last August.

Dr. Cervenka was graduated from the University of Minnesota Medical School in 1927. Associated with him in practice at New Prague is Dr. E. M. Doherty, a graduate of Marquette University School of Medicine.

* * *

Dr. Paul R. Hawley has resigned as chief executive officer of the Blue Cross and Blue Shield Commissions to become director of the American College of Surgeons, effective March 1. No one has yet been named to succeed him. Dr. Malcolm MacEachern will become director emeritus of the American College of Surgeons, will continue to head the hospital standardization program and will assist with other special activities.

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Dr. George N. Kraemer, who was formerly associated in practice with Dr. L. J. Monson of Canby, is now located in Minneapolis where he is taking postgraduate training under a surgical fellowship.

* * *

The University of Minnesota J. B. Johnston Lecture in Neurology was given on January 31 by **Dr. Theodore B. Rasmussen,** professor of surgery and chief of the division of neurosurgery at the University of Chicago. The title of his address was "Cortical Localization." Dr. Rasmussen is the first University of Minnesota Medical School graduate to give the Johnston Lecture, which is presented annually in honor of the former professor of neurology and dean of the College of Science, Literature and the Arts at the University.

Office nurses are available through the Professional Counseling and Placement Service of the Minnesota Nurses' Association, at no charge to nurse or employer. References are assembled on all registrants. Further information may be obtained by writing to the Minnesota Nurses' Association, 2395 University Avenue, Saint Paul 4, or by calling NEstor 4807.

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"Cutaneous Cancer" was the title of an address presented by **Dr. Henry E. Michelson,** Minneapolis, at the second annual Mid-West Cancer Conference in Witchita, Kansas, on January 19.

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The motion picture **"Be Your Age,"** presented by the Metropolitan Life Insurance Company and the American Heart Association, depicting facts about the heart and heart disease, should be valuable in the education of the public. It provides excellent educational material by showing, for example, the response of the heart to strenuous exercise in youth as compared to that in older age groups, and by pointing out the favorable results from proper restriction of activities by persons suffering from heart impairment.

* * *

Fishermen's College.—The following article, about a member of the Minnesota State Medical Association, appeared in a recent issue of the *Medical Pocket Quarterly* and is reprinted here since it definitely seems to be "of general interest."

Fishermen—Take Notice

Dr. Herman Linde, Minneapolis Coll. P. & S. '05, of Cyrus, Minn., is not only a most competent physician, but is the head of the first and only Fishermen's College in the world.

Dr. Linde, dean of the institution, got the idea for such a college in 1939. He said that during hard times people were doing everything for everybody except the poor fisherman. "He was a forgotten man." So he started to do something about it. He founded this college which now has 1,568 members. Its diploma reads: "This certifies that (blank) is thoroughly educated in the art and science of fishing and that he has a profound knowledge of scientific ichthyology and piscatorial metaphysics . . ."

One unique feature is that the Fishermen's College confers the degree of Doctor Piscator, summa cum laude, before the examination is held. And there is a reason. Some of the questions are—"How long can a whale hold his breath under water?" "Did your great grandma ever go angling?" "Define piscatorial psychosis." "Does a New Dealer catch more fish than a Republican?" "How many scales has a 2,500 lb. devil fish?" "On what day did God create the fishes?" et cetera. There are thirty-eight questions, winding up with "What is a straight fish line?" He asks that the answers "possess clarified conciseness, a compacted comprehensibleness, a coalescent consistency, and a concentrated cogency."

One interesting thing about the college is that a graduate is sure to get a diploma, which is similar to the

(Continued on Page 202)

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(Continued from Page 200)

diplomas of educational institutions and signed by the professors in various departments, which are "Bigger and better fish," "Original fish stories," "How to avoid the game warden," and "Piscatorial prognostication" and several others.

A man who sends a dollar to Dr. Linde with the request to join the institution will receive the diploma with the degree, and can let his conscience be his guide about answering the questions.

Among the graduates are McKenzie King, late Premier of Canada, Secretary of State Dean Acheson Governors George T. Mickelson of South Dakota; Val Peterson of Nebraska and Youngdahl of Minnesota; King Haakon of Norway, as Dr. Linde was born in Norway, and a great number of other dignitaries.

At the last banquet 260 people were present and Governor Youngdahl was the speaker.

* * *

Dr. F. W. Wittich, Minneapolis, presented a paper entitled "The Influence of Antihistamine Agents on Passive Transfer Wheals" at a meeting of the American College of Allergists in St. Louis on January 16, 17 and 18.

* * *

An institute to explore the application of new techniques of information services to the **field of health education** was held at the University of Minnesota Center for Continuation Study on January 12 and 13. The institute was presented in co-operation with the University School of Public Health, the Audio-visual Education Service, the School of Journalism and the Minnesota Department of Health.

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* * *

Among Minnesota physicians attending a postgraduate course on diseases of the blood, held at the Medical College of Alabama early in December and sponsored by the American College of Physicians, were **Dr. Bernhard J. Cronwell, Jr.,** Austin, and **Dr. Donald C. Campbell,** Rochester.

* * *

Dr. Robert B. Engstrom, formerly of Minneapolis, has opened offices for the practice of medicine in Mankato. A graduate of the University of Illinois College of Medicine in 1939, Dr. Engstrom served his internship and a surgical residency at St. Luke's Hospital, Chicago. He then conducted a general practice in Michigan City, Indiana, for three years, after which he moved to Minneapolis and became associated with the Nicollet Clinic for four years. He has taken postgraduate work at the University of Minnesota.

* * *

It was announced in December that **Dr. W. J. Hruza** of Minneapolis planned to move to Madelia to become associated in practice with Dr. H. E. Coulter of that city. A graduate of the University of Minnesota Medical School in 1943, Dr. Hruza served in the Navy for two years during World War II. For the past three years he has been a surgical resident at Swedish Hospital, Minneapolis.

* * *

A bequest of almost **one-half million dollars** was presented to the University of Minnesota on December 23 to be used for medical research. The bequest was from the estate of the late Silas McClure, Minneapolis businessman who died on February 16, 1949. Total value of the bequest was $482,304. Mr. McClure, who had previously given other medical research funds to the University, was the originator of the Monarch kitchen range and until his retirement in 1944 was president of the Electric Machinery Manufacturing Company, Minneapolis.

* * *

Dr. D. O. Osborn has become associated in practice with Dr. Oliver W. Roberts in Owatonna. A graduate of the University of Nebraska, Dr. Osborn interned at Grace Hospital, Detroit, Michigan. He has practiced medicine at Omaha, Nebraska, and has served in the Army for the past two years.

* * *

In the middle of December, **Dr. and Mrs. Oliver W. Anderson,** of Luverne, and their two sons left for a one-month vacation trip through the southern part of the United States.

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Dr. Jermyn F. McCahan, medical director of Bausch & Lomb Optical Company since 1941, has been named assistant to Dr. Carl M. Peterson, secretary of the AMA Council on Industrial Health. In his new assignment Dr. McCahan will travel extensively, visiting numerous industries throughout the United States.

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Dr. Gordon R. Kamman of Saint Paul has been appointed chief of the neuropsychiatric service at Ancker Hospital, Saint Paul.

* * *

Chairman of the 1950 Heart Campaign in Crow Wing County is **Dr. Francis J. Schnugg** of Brainerd.

* * *

Emergency diphtheria immunization clinics were set up at two Minneapolis schools on January 18 by Minneapolis Health Department and school officials. It was announced by Dr. F. J. Hill, commissioner of health, that thirty-two of the thirty-nine cases of diphtheria in the city from January 15, 1949, to January 15, 1950, occurred in the area in which the two schools are located. Dr. Hill stated that the deaths of two children in the previous week were "needless" and that diphtheria could be almost entirely prevented through immunization. Parents were urged to bring preschool children to the clinics and to sign release forms for school children to permit immunization.

* * *

Dr. L. McKenzie Gross, formerly of Provo, Utah, has become a staff member of the Fergus Falls State Hospital. A graduate of the University of Tennessee Medical School, Dr. Gross has been associated with two state hospitals in Tennessee as well as one in Provo.

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It was announced on December 16 that **Dr. A. D. Hoidale**, a practitioner in Tracy for forty-five years, had sold his interest and equipment at the Tracy Medical Clinic to Dr. Lyle M. Benson of that city. As a result Dr. Benson became the new partner of Dr. W. G. Workman in the clinic.

Dr. Hoidale, however, continues to own jointly with Dr. Workman the clinic's hospital building, where he intends to maintain his practice in the future, occasionally relieving Dr. Benson and Dr. Workman at the clinic.

Immediately after the announcement of the transaction, Dr. and Mrs. Hoidale left for Tucson, Arizona, where they planned to spend the winter.

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During 1949, Health District 5, comprising thirteen counties, lost nine practicing physicians, **Dr. Helen B. Wolff** of Worthington, district director, reported early in January. That left one physician for every 1,700 persons, as compared with 1,600 in 1948. The proportion varied from one physician per 2,800 persons in Redwood County to one per 1,200 in Yellow Medicine County.

Dentists remained practically constant in number, with an average ratio of one per 1,850 persons. The range, however, extended from one dentist per 5,020 persons in Murray County to one per 1,438 in Lyon County.

With only ten of the thirteen counties in the district reporting on the availability of nurses, registered nurses decreased during the past year by fourteen, and practical nurses gained by fifty-five. Full-time public health personnel in the district rose from fifteen in 1948 to 23 in 1949.

* * *

Dr. Robert D. Semsch, Minneapolis, has been reappointed Hennepin County physician for 1950.

* * *

Litchfield acquired another physician on January 1 when **Dr. Wayne A. Chadbourn** became associated in practice with Dr. Harold E. Wilmot, Dr. Cecil A. Wilmot and Dr. Donald E. Dille of Litchfield. A graduate of the University of Minnesota Medical School in 1943, Dr. Chadbourn served overseas in the Army during World War II. Following his term of service, he took postgraduate work at the University of Minnesota and at Abbott Hospital, Minneapolis.

* * *

Construction of a one-story medical office building began in Grand Rapids early in January. Owners of the new structure will be **Dr. Gordon M. Erskine** and **Dr. Clarence R. Ferrell**, whose offices were destroyed in a recent fire. Completion of the building is expected during March.

* * *

Retirement of **Dr. Brand A. Leopard**, Albert Lea, was announced in December. After practicing in Albert Lea for eighteen years, Dr. Leopard planned to retire in March or April and move to his home in Brownsville, Texas.

A graduate of the University of Minnesota, Dr. Leopard began his medical practice in New Richland. Later he took postgraduate work in surgery at the University of Pennsylvania, then practiced as a group surgeon in Evanston, Illinois. Eighteen years ago he moved to Albert Lea, where he has since practiced. Always civic minded, he has been a member of numerous city, medical and fraternal organizations. His retirement is caused by ill health.

* * *

Specialized training in psychiatry will be given to Minnesota mental hospital physicians, Governor Luther Youngdahl announced on January 6. The state physicians will receive a week of training at the Mayo Clinic's psychiatric section in Rochester. Credit for paving the way for the program was given to Dr. Francis J. Braceland, head of the psychiatric section of the Mayo Clinic and co-consultant in psychiatry to the Minnesota Division of Public Instruction.

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Dr. Harold C. Habein, of the section on internal medicine of the Mayo Clinic, Rochester, was married on December 23 to Mrs. Margaret H. Webb of Wabasha.

* * *

"The Pathologist and Law Enforcement" was the title of a talk given by **Dr. Arthur H. Wells,** Duluth, at a meeting of the Exchange Club in Duluth on January 4.

Dr. Donald M. Houston has been chosen as the Park Rapids school physician for the present school year. The office is a new service in Park Rapids, where it is planned to have the position rotate among the local physicians, each serving one year.

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A mass chest x-ray survey will be held in **Mower County** starting in March. The survey will last nine weeks and will be conducted by technicians from the Minnesota Department of Health in two mobile x-ray units.

* * *

January 1, 1950, marked the fiftieth wedding anniversary of **Dr. and Mrs. Arthur E. Benjamin** of Minneapolis. The physician and his wife celebrated the event at a dinner attended by their four children, among them Dr. Harold G. Benjamin and Dr. Edwin G. Benjamin, both of Minneapolis.

* * *

Among Minnesota physicians who attended a continuation course in obstetrics at the University of Minnesota in the middle of December were Dr. Bernice Thoresen, South Saint Paul; Dr. Peter J. Kitzberger, New Ulm, and Dr. Robert A. Murray, Hibbing.

* * *

A total of 110 physicians, dentists and nurses attended the final meeting on December 14 of the eight-week seminar on heart disease, cancer and psychosomatic medicine held in Fergus Falls. The principal speaker at the last of the weekly meetings was **Dr. Roger Howell**, associate professor of neuro-

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psychiatry at the University of Minnesota Medical School.

* * *

Work on a new medical clinic building in Oklee was nearing completion early in January, and it was expected that the structure would be ready for operation by the end of the month. In the meantime **Dr. F. L. Behling,** newly arrived physician in the village, was using his residence as a temporary office. The clinic building was financed by donations from local businessmen, farmers and the village. Total cost for the building and equipment was estimated at $33,000.

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Early in January **Dr. Henry Van Meier** of Stillwater attended a course on cardiovascular diseases at the University of Minnesota Center for Continuation Study.

* * *

Dr. John S. Lundy, chief of the section on anesthesiology at the Mayo Clinic, was honored on December 4 at a dinner in Rochester on his twenty-fifth anniversary in Rochester. More than 100 persons, many of them former associates who returned to Rochester for the event, attended the affair. Dr. Ralph Knight, Minneapolis, presented Dr. Lundy with a silver tray inscribed with the names of more than 250 of his former students. Said Dr. Knight: "The tray is a memento of our gratified feeling for the wisdom we received from you over a period of twenty-five years."

Dr. George L. Loomis, Winona, presented a paper at the meeting of the Minnesota Academy of Ophthalmology and Otolaryngology in Saint Paul on December 9. Dr. Loomis discussed the histamine treatment of Bell's palsy.

* * *

"Foundations for Better Health and Physical Fitness" was the title of a talk presented by **Dr. Ralph J. Eckman,** Duluth, at a meeting of the Parent-Teachers Association at Jefferson School in Duluth on December 13.

* * *

Dr. Leo G. Rigler, director and professor of radiology and physical medicine at the University of Minnesota, has been named national vice president of the American Friends of the Hebrew University.

* * *

Minnesota's new mental health commissioner is **Dr. Ralph Rossen,** superintendent of the Hastings State Hospital for many years. Announcement of his appointment to the newly created post, which became effective on January 1, was made on December 15 by Governor Luther Youngdahl, who issued a two-page tribute praising the abilities and qualifications of the physician. Selection of Dr. Rossen was made by the governor and a professional advisory committee of physicians.

* * *

Dr. O. L. Peterson of Cokato was honored at ceremonies held in the Cokato school auditorium on December 29. The meeting, to pay tribute to

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Dr. Peterson for his years of service, was sponsored by the Cokato Association and was attended by numerous residents of the city and surrounding area. Dr. Peterson, who is seventy-eight years of age, is a graduate of the University of Minnesota Medical School.

* * *

Principal speaker at a meeting of the Minnesota Society for the Prevention of Blindness and Conservation of Vision, held in Mankato on December 14, was **Dr. Frank E. Burch** of Saint Paul.

* * *

At a meeting in the **Mayo Clinic,** Rochester, on December 7, members of the Association of Fellows elected Dr. Robert W. Jampolis, president, Dr. Donald K. Buffmire, vice president, and Dr. Walter S. Phares, secretary.

* * *

Dr. Burton Grimes, superintendent of the St. Peter State Hospital, was the main speaker at a meeting of the Nicollet Parent-Teachers Association in Nicollet on December 14. Dr. Grimes discussed aspects of mental health.

* * *

It was announced on December 30 that **Dr. W. E. Macklin** of Mankato had accepted the position of radiologist at the Rice Hospital.

Dr. Macklin practiced medicine at Litchfield from 1931 to 1943, when he joined the Navy and served in the radiology department at the National Naval Medical Center in Bethesda, Maryland, for two and one-half years. Following his release to inactive duty, he took postgraduate work in his specialty at the University of Minnesota. For the past three years he has been radiologist at the Mankato Clinic.

* * *

Dr. Francis J. Braceland and **Dr. Donald W. Hastings** were appointed early in December to serve as consultants to the division of public institutions in the development of Minnesota's mental health program. Dr. Braceland is head of the psychiatric section of the Mayo Clinic, and Dr. Hastings is professor of psychiatry and neurology at the University of Minnesota.

* * *

"Cancer and What You Can Do About It" was the title of a talk presented by **Dr. O. G. McDonald,** Duluth, at a joint meeting of the Duluth Veterans of Foreign Wars auxiliaries' cancer workers on December 7.

* * *

Announcement of the election of four new trustees of the **Minnesota Medical Foundation** was made on December 13. Elected for four-year terms were Dr. Karl W. Anderson, Minneapolis, clinical associate professor of medicine at the University of Minnesota; Dr. E. T. Bell, Minneapolis, professor emeritus of pathology at the University, and Dr. Vernon Smith, Saint Paul. Elected for one year to fill an unexpired term was Dr. George N. Aagaard, director of postgraduate medical education and associate professor of medicine at the University.

* * *

According to plans announced during the middle of January, the newly constructed **Pine River Clinic** was expected to be open by the end of the month. The one-story modern-design building will house the offices of Dr. C. M. Zeigler and Dr. A. T. Rozycki of Pine River.

* * *

On December 16, **Dr. Alfred M. Ridgway** of Annandale was honored at a surprise gathering by the Annandale Odd Fellow and Rebekkah lodges. After tribute had been paid to him in several talks, Dr. Ridgway was presented with a special emblem of the order. He has been a member of the Annandale Odd Fellow lodge for fifty-seven years.

* * *

Dr. George Janda, who was associated with the Medico-Dental Clinic in Bertha during the past year, left on January 1 to begin a four-year period of postgraduate training in obstetrics and gynecology at the University of Minnesota Hospitals.

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Dr. George W. Drexler of Blue Earth has been appointed president of the Faribault County Heart Association for 1950.

* * *

Members of the **Warren hospital and clinic** staff were entertained at a dinner in Hotel Warren on December 20. Hosts and hostesses for the evening were Dr. and Mrs. C. H. Holmstrom, Dr. and Mrs. A. B. Nietfeld, and Dr. and Mrs. E. E. Pumala, of Warren. Included in the program for the evening were messages of appreciation from each of the physicians.

* * *

Dr. Albert M. Snell, a member of the Mayo Clinic staff since 1924, has resigned his position as head of a section in medicine and has moved to Palo Alto, California, to enter private practice and to become associated with the Palo Alto Clinic.

A graduate of the University of Minnesota Medical School, Dr. Snell practiced at the Mankato Clinic from 1920 until he joined the Mayo Clinic in 1924. During World War II, Dr. Snell served in the Navy from 1941 to 1943, much of the time on a hospital ship in the Pacific area. He then returned to Rochester for six months, after which he served as chief of the medical service at the Naval hospital in Oakland, California. He was finally separated from active duty in 1946.

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It was announced on December 22 that **Dr. Keith D. Larson** of Minneapolis had moved to Howard Lake and planned to open offices for the practice of medicine shortly after January 1. He had made arrangements to purchase the office building, equipment, residence and land of the late Dr. Leonard Harriman of Howard Lake.

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Dr. R. J. Wilkowske of Owatonna has been named chairman of the 1950 Heart Campaign for Steele County.

* * *

At a meeting of the northern St. Louis County Public Health Activities Committee in Virginia on December 10, **Dr. Mario Fischer,** Duluth, acting county health officer, discussed a reorganization plan for the city council health unit.

* * *

After practicing at Lake Benton for the past three and one-half years, **Dr. Albert M. Limburg** has moved his offices to Wilmont to conduct his practice there.

* * *

Dr. Albert E. Krieser, Mankato, will head the state's new tuberculosis control program, it was announced by Carl J. Jackson, state director of public institutions, on December 21. Dr. Krieser, who served in the Army for five years in World War II, has been associated with the state sanatorium at Ah-Gwah-Ching and has been tuberculosis consultant at the St. Peter State Hospital. His headquarters in his new position will be at Anoka State Hospital, where a new tuberculosis unit is being set up.

* * *

"The Recent Trend of Psychiatry" was the title of a talk given by **Dr. A. H. Langhoff** of Mankato at a meeting of the Mankato Registered Nurses Club on December 12.

* * *

Dr. Henry Goss of Glencoe was the principal speaker at a meeting of hospital, public health and other registered nurses in Glencoe on December 9. Dr. Goss spoke on "Care of the Mother and Newborn Infant."

* * *

Four Mayo Clinic fellows received awards for superior quality graduate theses at the annual staff meeting on December 21. The four who received the awards were Dr. B. E. Taylor, Dr. A. B. Taylor, Dr. W. B. Martin and Dr. D. S. Childs.

* * *

The Willmar State Hospital acquired a new staff physician during December when **Dr. Robert B. May** arrived in the city to begin his duties at the hospital. Dr. May is the former superintendent of the Eastern Shore State Hospital, Cambridge, Maryland.

* * *

Dr. Elmer J. Martinson, son of Dr. Carl J. Martinson of Wayzata, has opened offices for the practice of surgery in the Martinson Clinic Building. A graduate of the College of Medical Evangelists, Los Angeles, Dr. Martinson interned at Minneapolis General Hospital, then served in the Army for several years. Following this he completed a fellowship in surgery at the University of Minnesota. He has been a resident surgeon at Minneapolis General, Minneapolis Veterans and Fargo Veterans Hospitals.

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HOSPITAL NEWS

Following are the results of various hospital staff elections recently held in Minnesota.

Immanuel Hospital, Mankato.—Dr. G. E. Penn, president; Dr. R. G. Hassett, vice president; Dr. O. H. Jones, secretary. All were re-elected to office. Named to the executive committee were Dr. P. G. Hoeper, Dr. H. J. Nilson and Dr. F. W. Franchere.

Asbury Hospital, Minneapolis.—Dr. Alfred N. Bessesen, president; Dr. H. A. Alexander, vice president; Dr. Richard S. Rogers, secretary-treasurer. Dr. Stanley R. Maxeiner was elected to the medical advisory board to serve with Dr. Ann W. Arnold, Dr. Roscoe C. Webb, and Dr. Charles H. McKenzie.

St. Joseph Hospital, Mankato.—Dr. J. A. Butzer, president; Dr. O. H. Jones, vice president; Dr. A. A. Schmitz, secretary-treasurer. Reappointed to the executive board were Dr. M. I. Howard, Dr. A. E. Sohmer and Dr. J. A. Butzer.

Abbott Hospital, Minneapolis.—Dr. Orwood J. Campbell, president; Dr. John Haugen, vice president; Dr. Walter Hoffman, secretary.

Miller Hospital, Duluth.—Dr. M. G. Fredericks, chief of staff; Dr. Earl Barrett, vice chief of staff; Dr. Henry Jeronimus, secretary-treasurer. Named to the executive committee were Dr. Karl Johnson, Dr. Kenneth Teich and Dr. Mario Fischer (ex-officio member).

St. Cloud Hospital, St. Cloud.—Dr. N. F. Musachio, chief of staff.

St. Gabriel's Hospital, Little Falls.—Dr. E. J. Simons, president; Dr. D. E. Johnson, vice president; Dr. R. J. Stein, secretary. Named to the executive committee were Dr. J. T. Laughlin, Dr. G. M. A. Fortier and Dr. E. G. Knight.

Swedish Hospital, Minneapolis.—Dr. J. S. Milton, president; Dr. Harold T. Gustason, vice president, and Dr. Stanley Lundblad, secretary-treasurer.

Eitel Hospital, Minneapolis.—Dr. James A. Blake, chief of staff; Dr. Alton C. Olson, assistant chief of staff; Dr. Melvin B. Sinykin, secretary. All were re-elected to office.

* * *

Four new medical staff members of **Fairview Hospital,** Minneapolis, were named by the board of directors at a meeting on December 20. They are Dr. Loren J. Larson, Dr. Albert J. Schroeder, Dr. Harold S. Ulvestad and Dr. Harold G. Worman.

* * *

The Ramsey County Welfare Board voted on December 13 to retain the services of seven teaching medical men at **Ancker Hospital**, Saint Paul, but it postponed decision on where to get money to pay them. In the past the men were financed by the University of Minnesota. However, the University had announced that it was withdrawing its support beginning July 1 because of new arrangements with Minneapolis Veterans Hospital. Since eliminating the services of the men would greatly curtail the activities of Ancker as a teaching hospital, the board decided it would have to find $10,050 to finance the men for the last half of the year.

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BLUE CROSS-BLUE SHIELD NEWS

January 10, 1950

TO: Participating Doctors of Minnesota Medical Service Inc.

My dear Doctor:

Apparently there has been some dissatisfaction and misunderstanding on the part of some doctors regarding certain features of Blue Shield and Blue Cross. So, it occurred to me that a few words of explanation should prove of benefit to both the doctors and the organizations.

In principle, insurance serves as a protection from a major loss. Only rarely does it fully reimburse the insured for the total loss. This feature is almost universally seen in automobile insurance in which the insured is reimbursed for the balance of $25 or $50. In other words, were it not for this principle, that is reimbursement of part but not all of the cost or loss, insurance would be an investment rather than a safeguard against extensive loss.

Yet, it is this feature of medical care insurance that is causing the misunderstanding in the minds of many physicians. General practitioners complain that medical insurance does not cover office and house calls; various specialists are unhappy because their full fees for each service are not covered; and both family doctors and specialists are dissatisfied that all diagnostic services, such as x-rays especially, are not covered in the policies.

It is the full coverage features among other things which have cost the British and European health insurance programs so excessively. It is the full coverage feature of Compulsory Health Insurance in this country that will either bankrupt the government or lead to some form of collectivism. In other words, full coverage medical and hospital care is only possible at exorbitant cost to its underwriters.

In the present instance, x-ray fees and services are causing difficulty. In a recent analysis of Blue Shield contracts, Minnesota's was found more liberal in x-ray services. Beyond this, administrative personnel and the Boards of Directors are liberal in consideration of x-ray services whenever liberality is possible. Despite these facts, diagnostic x-ray services and hospitalization of patients solely for the purpose of having x-ray services paid for by either Blue Shield or Blue Cross are working hardships upon the organizations.

Unless it is possible to reduce costs of diagnostic x-ray services or hospitalization solely for x-ray services, the end-point could be either insolvency or raising the premiums. Blue Shield has paid over a million dollars for medical care and Blue Cross over eight million dollars for hospital care during the past year. From the contract holder's viewpoint much money has been saved him. From the doctor's and hospital's viewpoint it is reasonable to assume that more bills have been paid than would have been paid were the patients not insured under either or both Blue Cross and Blue Shield. Add to this the fact that these organizations provide a program by which the American people can preserve for themselves free choice of physician and the other

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principles of American medicine which have given them the lowest death rate and the highest level of health of any comparable population in the world.

So, it seems not without reason to plead co-operation in minimizing x-ray fees for diagnosis and especially hospitalization merely to cover diagnostic x-ray services. Such co-operation would be a distinct contribution to the continued success of both Blue Shield and Blue Cross, as well as a thorn in the flesh of those advocating compulsory sickness insurance.

Yours very truly,
Edwin J. Simons, M.D.
Chairman, Medical Advisory Committee
Minnesota Medical Service, Inc.

Tuberculosis is not a simple health problem like the removal of tonsils or the repair of a broken leg. It is a complex, long-time ailment almost always resulting in a special way of living. Tuberculosis involves many things besides hospital, medical, and nursing care. It has many requirements on the social welfare side and these needs are often of long duration. The tuberculosis problem is one of prehospital and posthospital care with all that they mean. Moreover, it is a problem of the care of the patient's family as well as of the patient.—Ruth Taylor, *Nat. Tuberc. A. Bull.*, October, 1949.

TREATMENT OF DEAFNESS WITH HISTAMINE

(Continued from Page 159)

provement in hearing. The result showed eight patients improved, five not benefited and three slightly improved. Further study in the use of histamine in the treatment of nerve deafness seems warranted. Careful selection of cases is important since it is very easy to arbitrarily give all deaf patients the same treatment in a too zealous attempt to achieve results beyond the realm of this medication.

References

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

CLINICAL CASE-TAKING; GUIDES FOR THE STUDY OF PATIENTS; HISTORY-TAKING AND PHYSICAL EXAMINATION OR SEMIOLOGY OF DISEASES IN THE VARIOUS SYSTEMS. By George R. Herrmann, M.D., Ph.D., Professor of Medicine, University of Texas. 4th edition. 240 pages. St. Louis: The C. V. Mosby Company, 1949. Price $3.50.

This manual is intended primarily for instruction and uidance of clinical clerks in the author's hospital, but xcept for a few specific items of local application could vell be used anywhere. The first section presents the mportance of history taking. There is much emphasis n establishment of proper rapport with the patient and an attempt is made to assist the student in this direction. nstructions for history taking and physical examination re very complete, covering first the general medical roblem and then devoting chapters to various special roblems. The appendix lists symptoms by regions with ossible causative conditions.

The book may have little appeal for physicians in ractice; however, for one willing to spend the time, it erves as an excellent check on the adequacy of his xaminations.

David M. Craig, M.D.

HUMAN BIOCHEMISTRY. By Israel S. Kleiner, Ph.D., Professor of Biochemistry and Director of the Department of Physiology and Biochemistry, New York Medical College, Flower and Fifth Avenue Hospitals; Formerly Associate, The Rockefeller Institute for Medical Research, New York. 2d edition. 649 pages. Illus. St. Louis: The C. V. Mosby Company, 1948. Price $7.00.

This book is a gratifyingly successful attempt to correlate biochemistry with clinical medicine. As a textbook he material is well presented, is illustrated with wellhosen, appropriate and instructive graphs and pictures. The author has drawn from many sources for his maerial and has supplemented his remarks with a valuable ibliography. Besides a reference for general review of he changing concept of biochemistry, the practitioner vill find particular value in the last chapters which deal vith the effect of various drugs on the body and recent linical applications of chemistry to medicine.

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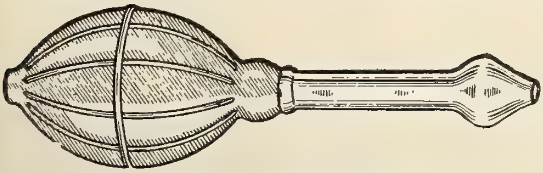

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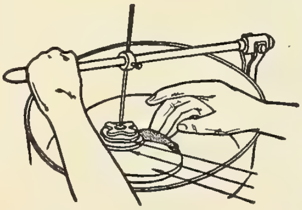

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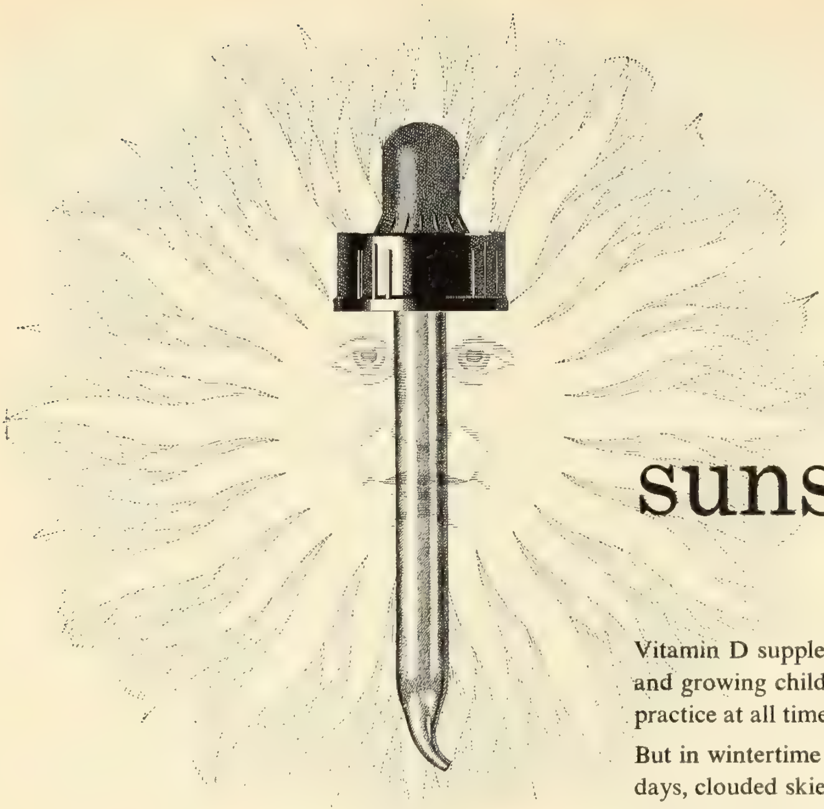

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Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

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Entered at the Post Office in Saint Paul as second class mail matter. Accepted for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized July 13, 1918.

MINNESOTA MEDICINE

OFFICIAL JOURNAL OF THE MINNESOTA STATE MEDICAL ASSOCIATION

Published by the Association under the direction of its Editing and Publishing Committee

Office of Minnesota State Medical Association,
493 Lowry Medical Arts Bldg., Saint Paul 2, Minnesota.

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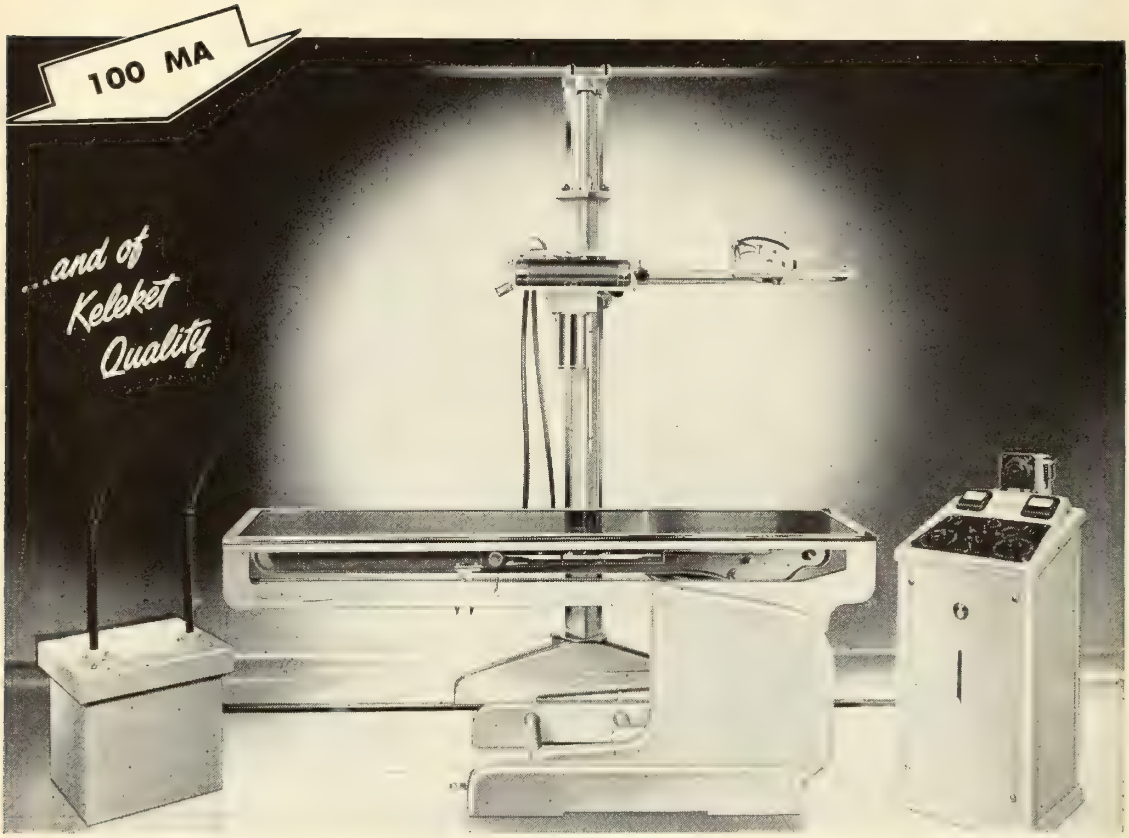

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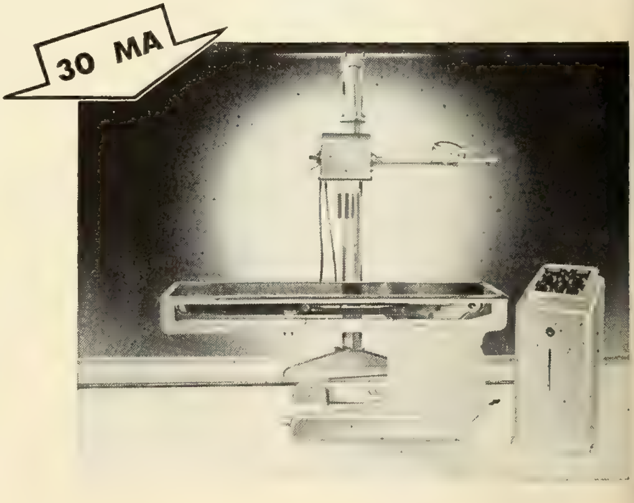

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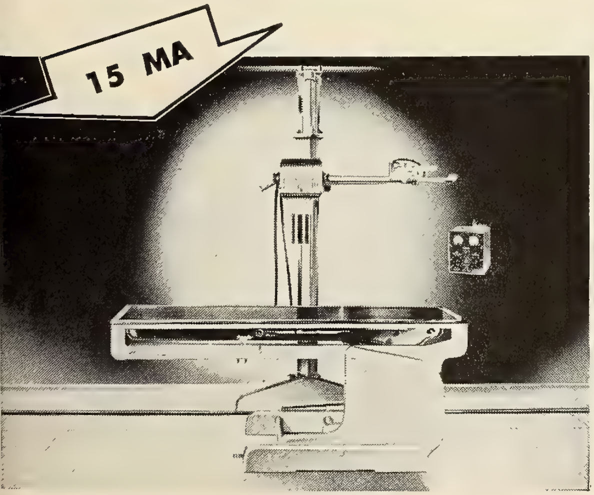

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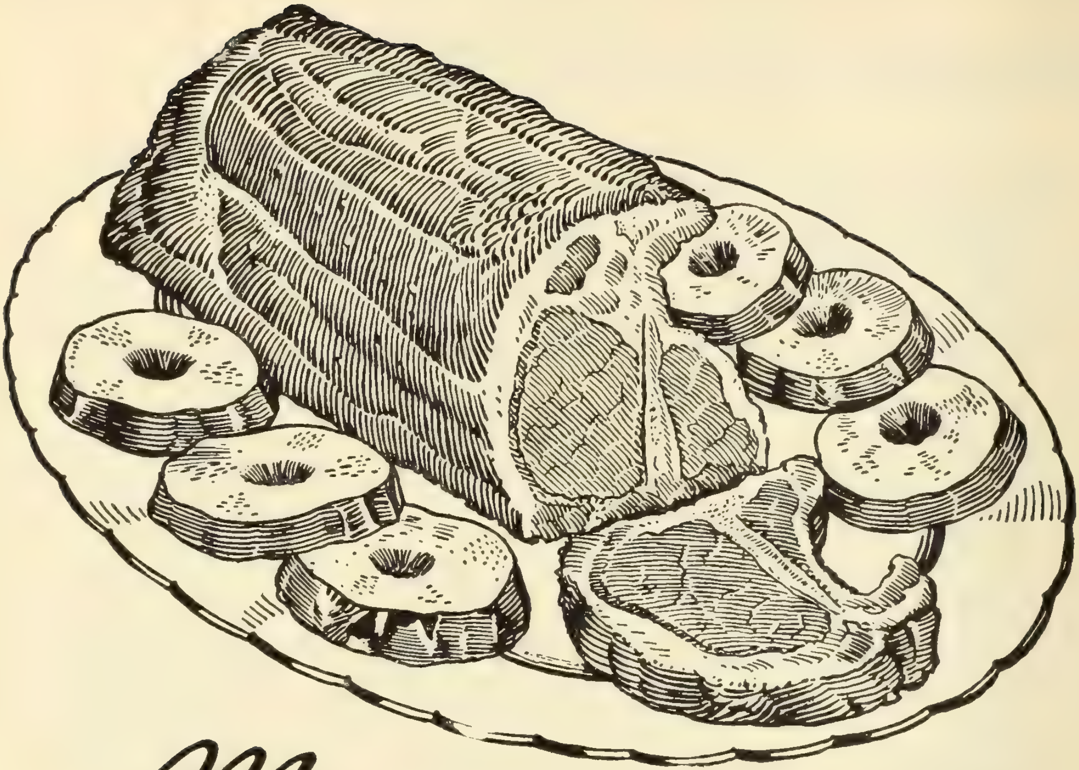

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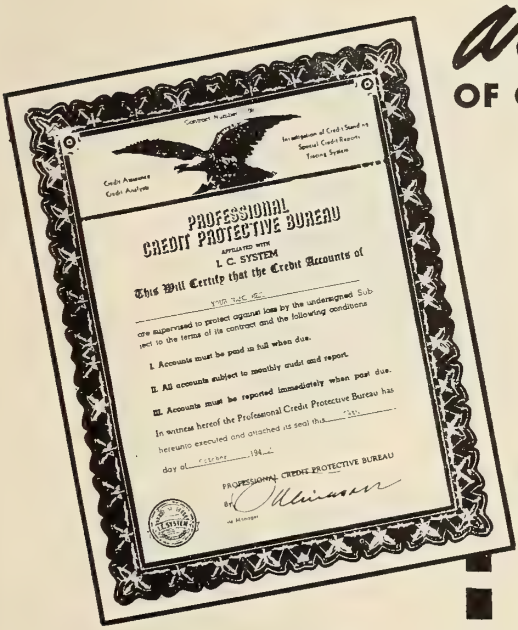

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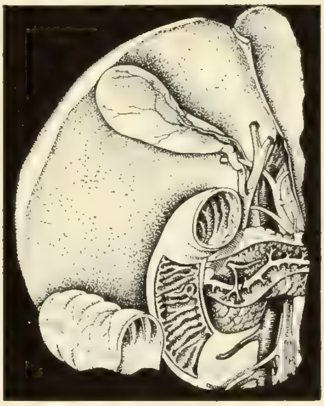

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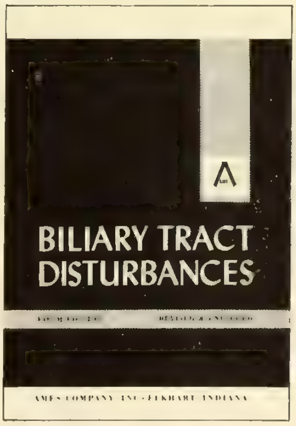

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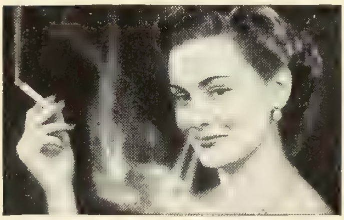

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 33 March, 1950 No. 3

NEUROPSYCHIATRIC AND LABORATORY OBSERVATIONS IN 147 PATIENTS FOLLOWING CRANIO-CEREBRAL INJURIES

AXEL OLSEN, M.D., and RALPH ROSSEN, M.D.
Minneapolis, Minnesota

DESPITE the excellent clinical and fundamental observations of various workers in the field of cerebral concussion and post-traumatic cerebral states it is still difficult to evaluate and prognosticate the outcome of head injuries in the human. The literature discloses that there is still a wide gap in the observations pertaining to experimental cerebral concussion in animals and the clinical impressions gained from the study of humans, especially in the psychological sphere.[1,4,8,9]

Electroencephalography appears to come the closest to narrowing this gap, especially in the study of post-traumatic seizures.[5] Recent investigations on the physiological basis of concussion[1,9] and the clinical effects of trauma to the head[3] and studies of the electrical activity of the cortex in recent and late head injury[4,5,8] have contributed much to the knowledge of this field. However, does severe trauma to the head, whether the ensuing pathologic process be chemical, electrical or psychological, change an individual's total personality permanently, or can he revert to what he was before his head injury? It is easy to comprehend the detrimental effects psychologically in an individual who develops overt post-traumatic neurological manifestations such as epilepsy or a paralysis or a paresis of one or more extremities. It is often much more difficult to evaluate the detriment to the personality in the individual who complains of headache, dizziness, instability, irritability, emotional instability or fatigueability long after the event of his head trauma. How many of these symptoms are superimposed psychological factors and how many are actually due to the head injury present almost insurmountable difficulties to the attending physician.

Do "blackouts" and vertiginous attacks[2] precede the first post-traumatic seizure and what part can electroencephalography play in early diagnosis? Can a pathologic condition in the region of the inferior surface of the orbital lobe (area 13) account for some of the symptoms of the so-called post-concussion syndrome?[9]

The foregoing problems led to the present study of 147 patients, many of whom had sustained relatively severe cranio-cerebral injuries, to determine, if possible, the relationship of the trauma to the persisting neurological, psychiatric, electroencephalographic and roentgenological abnormalities.

Method

An attempt was made to correlate the electroencephalographic findings with:

1. Time in months between head injury and E. E. G. examination.
2. The number of patients with residual symptoms of:
    (a) post-traumatic seizures
    (b) headache

We wish to take this opportunity to express our thanks to Captain George Raines (MC) U.S.N., Captain S. M. Smith (MC) U.S.N.R., and other members of the neuro-psychiatric staff who were at the U. S. Naval Hospital, Portsmouth, Va., during the period from January, 1944, to January, 1946, for their splendid co-operation in making this work possible.

The opinions or assertions contained herein are the private ones of the writers and are not to be construed as official or reflecting the views of the Navy Department or the naval service at large.

  - (c) "blackouts"
  - (d) dizzy spells
  - (e) various other neuropsychiatric complaints.

3. The number with residual defects in the skull as shown by x-ray examination.
4. Those patients with objective neurological findings.
5. The period of unconsciousness.

No follow-up was obtained on any of these patients after they left the hospital. The objective neurological signs were not included when they were transient or equivocal.

Material.—Over a period of two years (1944 and 1945) material was collected from patients with head injuries who were on the neurosurgical service at the U. S. Naval Hospital, Portsmouth, Va., or from patients referred to the same activity from surrounding naval, coast guard and army hospitals for electroencephalogram (E. E. G.) studies. One hundred forty-seven patients with an age variation from nineteen to thirty-eight years were studied. The series was divided into two groups: Seventy-three patients who did not have E. E. G. studies and seventy-four who did have E. E. G. studies. Either because the patients were studied and disposed of before there was an E. E. G. apparatus available or because this type of consultation was not requested, E. E. G. examinations were not performed on the first group (seventy-three). Each case history was analyzed in regard to age, date of injury, type of injury, duration of unconsciousness (where this could be obtained), residual objective neurological findings and residual subjective neuropsychiatric symptoms. The date and lapse of time between injury and first convulsive seizure and diagnosis were correlated. Analysis was made of those patients with a retained foreign body in the cranium or with skull defects as a result of the injury. In the group which had E. E. G. examinations attention was also given to the time interval between head injury, onset of first seizure and the E. E. G. examination.

All patients received careful neuropsychiatric examinations, indicated laboratory tests and indicated consultations from various other departments. The subjective complaints and objective neurological findings considered were those that were present at or about the time of the E. E. G. examination and consisted of headaches, dizzy spells, nervousness, anxiety and easy fatigueability. In the group evaluated which did not have E. E. G. examinations, the clinical findings evaluated were those present during the patient's period of hospitalization.

Of the 147 patients studied, 100 were discharged from the U. S. Naval Hospital, Portsmouth, Va. These patients were observed over a period varying from one to six months, depending upon the severity of their residual symptoms. Of this group forty-one were discharged with the diagnosis of intracranial injury, twenty-four with the diagnosis of blast concussion, ten with the diagnosis of fractured skull, seventeen with the diagnosis of gunshot wound (head or shrapnel wound), three with the diagnosis of headache and five with miscellaneous diagnoses including psychoneurosis. The remaining forty-seven patients were from other military activities and their discharge diagnoses were not known. The majority of these individuals had sustained their head injuries in line of duty; many of them were injured in front-line combat, and it was, therefore, difficult in some of them to determine the exact duration of unconsciousness. Every attempt was made to obtain all pertinent data, but it was felt that it was best to consider time periods of unconsciousness unknown unless they were relatively exact.

All of the patients were conscious at the time of their E. E. G. examinations, and except for four of them, all had suffered their head injuries at least three months previous to their E. E. G. examinations. Thus, no studies on very recent severe or mild head injuries were obtained. Almost all of the patients had neuropsychiatric complaints at the time of their E. E. G. examinations or at the time of their admission to the hospital.

Electroencephalographic Technique and Method of Interpretation.—The electrical activity of the right and left frontal, parietal and occipital cortex was recorded with a Grass 6-channel electroencephalograph. All records were made with scalp to ear leads. The indifferent electrode was formed by interconnecting the two ear leads. Electrodes were applied to the scalp, using the method described by Gibbs.[6] Records were taken with the patient lying on a table in a shielded cage. Cortical activity was recorded for at least ten minutes on each subject. Two minutes were allowed for hyperventilation and two to three minutes were allowed for recovery. Gibbs' classification of E. E. G. records[7] was used throughout, with the following modifications: all paroxysmal tracings (petit mal, psychomotor, grand mal, spikes and S.2 and F.2 tracings) were classified as abnormal. The F.1 and S.1 tracings were classified as having slight abnormalities. All activity in the range of 8 to 13.5 per second was classified as normal. In records of all tracings mention was made as to whether the abnormalities were focal or non-focal in type. The whole record was carefully reviewed and random wave counts were made on at least 40 seconds of record before and after hyperventilation.

TABLE I. CORRELATION OF E. E. G. FINDINGS AND TIME IN MONTHS BETWEEN DATE OF HEAD INJURY AND ELECTROENCEPHALOGRAPHIC EXAMINATION

Time in Months Between Date of Head Injury and Electroencephalogram	Number of Cases	Electroencephalographic Findings		
		Normal	Slightly Abnormal	Greatly Abnormal
3 to 6*	29	15	7	7
6 to 12	18	7	7	4
12 to 24	9	5	2	2
24 to 36	4	3	1	0
36 to 48	3	2	1	0
48 to 60	0	0	0	0
60 to 72	0	0	0	0
Over 72	6	4	0	2
History of head injury, time unknown	5	3	2	0
Total Number of Cases	74	39 (52.7%)	20 (27%)	15 (20.3%)

*The true element in 4 of these 29 cases was just under 3 months.

TABLE II. CORRELATION OF E. E. G. FINDINGS WITH PRESENTING SYMPTOMS

Presenting Symptom	Number of Cases	Normal		Slightly Abnormal		Greatly Abnormal		Focal or Non-Focal E. E. G. Abnormality	
		No.	Pct.	No.	Pct.	No.	Pct.	Slightly Abnormal	Greatly Abnormal
"Blackout"	7	5	72%	1	14%	1	14%		
Dizzy spells	15	12	80%	2	13%	1	7%		
Headache	40								
(a) headache alone	14	8	57.14%	3	21.43%	3	21.43%		
(b) headache and other symptoms	26	21	81%	3	11%	2	8%		
One or more objective neurological signs other than convulsive seizure	17	5	29.4%	5	29.4%	7	41.2%		
Nervousness, anxiety, attacks of confusion, memory lapses, easy fatigability	15	10	67%	3	20%	2	13%		
Post-traumatic seizures (observed)	9	1	11%	3	33%	5	56%	1 in the right parietal lead	2 in the right and left frontal areas

Results

Analysis of Total Number of Cases.—Analysis was made of 147 cases of cranio-cerebral war injuries, one hundred of these with the closed type (including lacerated scalp without skull fracture), the remaining forty-seven having sustained compound wounds of the skull with brain injury. Of this total group, by far the most frequent subjective complaint was headache which occurred in 112 patients. Of these 112, seventy-three complained of headache alone while thirty-nine had in addition to their headache one or more other subjective symptoms. Nine per cent developed post-traumatic epilepsy, 33 per cent had residual neurological findings of various types, 67 per cent complained of headache, 26 per cent complained of "blackout" or "dizzy spells" and 19 per cent complained of nervousness, anxiety, memory lapses and easy fatigueability.

Analysis of 74 Cases with E. E. G. Studies.—Forty-eight of these had closed head injuries (including lacerated scalp without skull fracture); the remaining twenty-six cases had compound skull and brain wounds.

Table I shows the correlation between date of head injury and the result of the E. E. G. examination. Of this group, forty gave a history of headache plus some other symptoms, fourteen gave a history of headache alone, seven gave a history of "blackout,"[2] fifteen stated that they suffered from dizzy spells, fifteen voiced various psychiatric complaints such as nervousness, anxiety, attacks of confusion, memory lapses and fatigue, seventeen had one or more objective neurological findings and nine had post-traumatic seizures.

Table II shows the distribution of the total group in regard to symptoms and E. E. G. type of abnormality.

TABLE III. CORRELATION OF E. E. G. FINDINGS WITH LENGTH OF UNCONSCIOUSNESS

Length of Unconsciousness	Number of Cases	Electroencephalographic Findings		
		Normal	Slightly Abnormal	Greatly Abnormal
Less than 6 hours	7	3	4	0
12 to 24 hours	2	0	1	1
24 to 48 hours	3	1	1	1
48 to 72 hours	2	1	1	0
3 to 6 days	2	1	0	1
14 days	1	0	1	0
Not unconscious*	3	1	1	1
Total	20	7	9	4

*Of these three cases:
One had skull fragments in his scalp. He had an abnormal E. E. G.
One was dazed and had a slightly abnormal E. E. G.
One had sustained a simple skull fracture and had a normal E. E. G.

TABLE IV. CORRELATION OF E. E. G. FINDINGS WITH TYPE OF HEAD INJURY

Type of Head Injury	Number of Cases	Electroencephalographic Findings			E. E. G. Findings, Focal	
		Normal	Slightly Abnormal	Greatly Abnormal	Slightly Abnormal	Greatly Abnormal
Compound skull and brain injury	26	12 (46%) One of these P. T. E.*	6 (23%) One of these P. T. E.	8 (31%) 4 of these P. T. E.	1 focal, right parietal	2 focal, bifrontal, one of these especially R. F.
Closed head injury without skull fracture but including laceration of the scalp	48	27 (56.25%)	14 (29.17%) Two of these P. T. E.	7 (14.58%) One of these P. T. E.		
Total	74	39 (52.7%)	20 (27%)	15 (20.3%)		

*P. T. E.: post-traumatic epilepsy

Table III shows correlation of E. E. G. findings with length of unconsciousness.

Table IV shows correlation of E. E. G. findings with the type of head injury.

1. E. E. G. Results in Patients with Objective Neurological Findings other than a Convulsive Disorder.—Of this group of seventeen patients, five had normal E. E. G. findings, seven had greatly abnormal E. E. G. findings, and five showed slightly abnormal E. E. G. findings.

Of the five patients with normal E. E. G. findings one had peripheral visual field constriction, one had a paresis of his right arm (this patient showed x-ray evidence of small left parietal defect), one had right oculo-motor paresis (this patient showed x-ray evidence of a foreign metallic body and a bony defect in the right temporal area), one had an unsteady gait, slight right deafness and horizontal nystagmus (left component), and one had right-sided nerve deafness (this patient showed x-ray evidence of a fracture through the right temporal bone).

Of the seven who had marked abnormal E. E. G. findings, one showed a horizontal nystagmus to the left, one showed right-sided mild cerebellar symptoms, one showed a left dilated pupil and could not converge his eyes, one showed right-sided homonymous heminopsia, one showed bilateral anosmia and left-sided deafness, and one showed nerve deafness of the left ear. The seventh patient showed a focal E. E. G. (left parietal region). In addition he had x-ray evidence of a foreign metallic body in the left occipital region, a positive Hoffman (right side) and right lower quadrant homonymous heminopsia.

Of the five patients who showed slightly abnormal E. E. G. findings, one had a complete left facial paralysis and total anosmia, one showed mild right-sided cerebellar signs, one showed left-sided paresis of the arm, leg and face (skull x-ray showed a bony defect in the right parietal region), one showed horizontal nystagmus to the left, and one had focal findings in the left frontal and right occipital regions (this patient had an unsteady gait and left lower facial weakness).

One patient was neurologically negative and had a normal E. E. G. but showed x-ray evidence of a foreign metallic body in the left occipital region of the skull. This man voiced subjective complaints of headache and dizzy spells.

2. E. E. G. Findings in Patients Who Presented Dizziness plus Other Subjective Complaints.—Fifteen of the seventy-four patients presented dizziness as a subjective complaint. All of these patients, in addition, voiced one or more other somatic complaints. Twelve (80 per cent) had a normal E. E. G., one (7 per cent) had a greatly abnormal E. E. G. and two (13 per cent) had a slightly abnormal E. E. G.

3. E. E. G. Findings Correlated with the Duration of Unconsciousness following Head Injury.—Of the total number of patients, seventy-four had had E. E. G. examinations. The duration of unconsciousness was not known in fifty-four. Of these fifty-four patients, thirty-one had a normal E. E. G., eleven had a greatly abnormal E. E. G., and twelve had a slightly abnormal E. E. G.

Seven patients had been unconscious for six hours or less. Of these, three had normal and four had slightly abnormal E. E. G., non-focal in type. Two patients had been unconscious for from twelve to twenty-four hours; one of these had greatly abnormal and one slightly abnormal E. E. G., non-focal in type. Three had been unconscious from twenty-four to forty-eight hours; one of these had a greatly abnormal E. E. G., one a slightly abnormal, and one had a normal E. E. G. Two had been unconscious forty-eight to seventy-two hours; one of these had a slightly abnormal E. E. G. and the other had a normal E. E. G. Two had been unconscious for six days; one of these had a greatly abnormal E. E. G., the other had a normal E. E. G. One patient had been unconscious for two weeks and had a slightly abnormal E. E. G., non-focal in type.

Three patients had not been unconscious, and of these one had a normal E. E. G., one had a greatly abnormal E. E. G. and one had a slightly abnormal E. E. G., non-focal in type. Of these three patients one had skull fragments in his scalp. He had an abnormal E. E. G. One had been dazed and had a slightly abnormal E. E. G. The third had sustained a simple skull fracture and had a normal E. E. G.

4. E. E. G. Findings in Patients Who Voiced Symptoms of Nervousness, Anxiety and Easy Fatigueability.—Fifteen of the seventy-four patients gave symptoms of nervousness, anxiety, memory lapses and easy fatigueability. Of this group ten had normal E. E. G., three had slightly abnormal E. E. G. and two had greatly abnormal E. E. G.

Of the two that had greatly abnormal E. E. G., one complained of intermittent attacks of amnesia and sleep-walking. The other complained of poor memory and inability to concentrate. It is interesting that the remaining thirteen patients who had normal or slightly abnormal E. E. G. all voiced various other somatic complaints such as headache, dizziness, et cetera, in addition to their symptoms of nervousness, easy fatigueability and anxiety states.

5. E. E. G. Studies in Patients Who Voiced Headache as Their Only Complaint.—Of fourteen patients whose only presenting symptom was headache, eight had normal E. E. G., three had slightly abnormal E. E. G., and three had abnormal E. E. G.

6. E. E. G. Studies in Patients Who Voiced Headache plus Various Other Somatic Symptoms.—Of twenty-six patients who voiced headache in addition to other subjective symptoms including "blackout," dizziness, nervousness, et cetera, twenty-one had normal E. E. G., three had slightly abnormal E. E. G., and two had abnormal E. E. G.

7. Analysis of Patients Who Had Post-Traumatic Seizures.—Of the total group of seventy-four patients, nine (12 per cent) had suffered convulsive seizures since their head injuries. Of these nine cases, three had had their first seizure in less than six months after injury, four in from six to twelve months after injury, one in from twelve to eighteen months after injury, and one had had his first seizure over eighteen months after injury.

Of the nine patients who developed post-traumatic seizures, five showed greatly abnormal E. E. G., two of which were focal in the right and left frontal areas; three showed slightly abnormal E. E. G., one of which was focal in the right parietal area, and one showed a normal E. E. G. Of the five patients who showed gross abnormalities in the E. E. G., two showed defects in the frontal regions in their skull x-rays. Both of these patients had focal abnormalities in the frontal regions upon E. E. G. examination. One of these had a skull defect of the frontal bones, 2 inches in diameter. He was neurologically negative except for concentric constriction of visual fields, most marked in the left. The other showed a foreign metallic body in the left frontal region in his skull rays. He was neurologically negative except for enucleation of his right eye. Of the three who showed diffuse E. E. G. abnormalities, one showed a foreign body in the right frontal region by x-ray (he also had suffered osteomyelitis of his frontal bones after his injury). Another showed small metallic bodies (shrapnel) in the left parietal region by x-ray, and he had a right lower quadrant heminopsia. The fifth had a healed occipital scar but was otherwise neurologically negative, and his skull rays were negative.

Of the three patients who showed slightly abnormal E. E. G., one had focal E. E. G. findings in the right parietal area. X-rays of his skull showed a defect about 1 inch in diameter in the right parietal area. A splinter of bone had been removed from that area following his head injury, and it was observed that he had had a left hemiparesis for several days after the accident. His E. E. G. was done nineteen days after his last seizure. The other two were neurologically negative and had normal skull rays. They both showed slight diffuse abnormalities.

One patient had a normal E. E. G. He had had a head injury in 1937 and was unconscious three days. Skull rays showed an old fracture line in the right tempero-parietal region. Neurological examination at time of E. E. G. examination (seven years later) revealed a left homonomous superior quadrant defect and impaired olfactory sense. He had had his first seizure seven years after his head injury. The E. E. G. examination was done three months after his last seizure.

As previously stated, nine in the group of seventy-four men who gave a history of head injury had a diagnosis of post-traumatic epilepsy. Brief case histories of these nine patients are given.

Case Reports

Case 1.—This white man, twenty-seven years of age, was rendered unconscious for five minutes. Five months later he was observed in a grand mal seizure (June 28, 1945). An E. E. G. done nineteen days after his seizure was slightly abnormal with the maximum abnormalities in the right parietal region. He was neurologically negative at the time. Skull rays showed a defect about one inch in diameter in the right parietal region. He had a left hemiparesis for several days after the accident but no other symptoms.

Case 2.—This twenty-two-year-old private with two years' service received a head injury in 1939. First grand mal seizure occurred about a year later followed by two others, the last one on March 15, 1945. E. E. G. done four months after the last seizure was abnormal with the most marked abnormalities in frontal leads. Skull rays showed a defect 2 inches in diameter in the frontal bones. Neurological examination was negative except for concentric constriction of the visual fields, most marked on left.

Case 3.—This patient, aged twenty-five, received a penetrating wound by shell fragment in the frontal region on October 8, 1944. An E. E. G. eight months later was abnormal with most marked abnormalities in frontal region. Skull rays showed a foreign metallic body in the left frontal region. Patient had a sudden attack of amnesia a week prior to E. E. G. He was neurologically normal except for an enucleation of his right eye.

Case 4.—This thirty-year-old patient received a head injury in November, 1943. He was unconscious for an indefinite time. He had his first seizure two weeks later, December, 1943, and has had four to five severe "blackouts" and dazed attacks since. E. E. G., done June 19, 1945, was over two years after injury and two months after his last seizure. This was slightly abnormal, and it was noted that it was non-focal in type.

Case 5.—This twenty-year-old patient was in an automobile accident in 1940 and rendered unconscious for thirty hours. He had a healed occipital scar. Ten convulsive seizures were suffered from 1941 to April 1945. An E. E. G. done three months after the last seizure and five years after the head trauma was greatly abnormal and non-focal. The patient was neurologically negative.

Case 6.—This patient suffered a head injury in January, 1943, a steel wedge penetrating his right forehead. Osteomyelitis for three months and four convulsions, the first in 1944, were followed two years after injury by the first E. E. G. which was greatly abnormal. The neurological examination was negative. Skull rays revealed a small metallic foreign body in the right frontal region, intracranially situated. His E. E. G. which was taken some two years after his injury was found to be greatly abnormal but non-focal in type.

Case 7.—This thirty-two-year-old patient suffered a right tempero-parietal fracture in an automobile accident in 1937 and was unconscious for three days. An epileptic seizure followed about six years later. E. E. G. examination was performed seven years after injury but only several months after seizure. The tracing was normal. Neurological examination showed left homonomous superior quadrant defect and poor olfactory sensation.

Case 8.—This patient was struck in the left parietal region by a piece of shrapnel in late 1944 and he was unconscious for fifteen hours. His first seizure occurred March 30, 1945. On the following day an E. E. G. examination showed diffuse abnormalities. The seizure was right-sided. There have been two mild seizures since. E. E. G. ten months after accident and seven months after first seizure showed minimal abnormalities, diffuse. The patient was neurologically negative except for right lower quadrant heminopsia. Skull rays showed small metallic foreign body (shell fragment) in the left parietal area.

Case 9.—This patient was struck behind the right ear with a wine bottle in June, 1941, and was rendered unconscious for two weeks. The first seizure occurred eighteen months after the accident, the second in July, 1944, and the third in November, 1944. E. E. G. examination several days after last seizure revealed minimal abnormalities, non-focal. Neurological and skull-ray examinations were negative.

Analysis of 73 Cases without Electroencephalographic Studies.—These patients were analyzed in regard to objective and subjective neuropsychiatric residuals. Fifty-nine complained of headache alone and thirteen of dizzy spells or "blackout." All of the patients who had dizzy spells also complained of headache. Thirteen complained of memory defect or voiced symptoms of easy fatigueability and nervousness. Five complained of tinnitus in one or both ears. Organic neurological residuals were present in twenty-two patients or 30.1 per cent. Twenty had compound skull and brain wounds. Fifty-two had closed head injuries including lacerated scalp without fracture. One had an extradural hematoma (verified at operation). Eleven had compound skull and brain wounds with no obvious residuals. Nine had compound skull fractures with brain wounds with obvious neurological residuals. Four had post-traumatic epilepsy, and all of these had compound skull and brain wounds. Forty-nine of the seventy-three patients had periods of unconsciousness of varying duration. It was not recorded in eighteen instances, and six were never unconscious. All but one patient had various subjective complaints.

It is of interest that in this group headaches and dizziness were the two most common complaints. Nervousness, anxiety and lapse of memory were next in frequency. Less than half of the patients with compound injuries, many of them with retained metal fragments in their brains (confirmed by skull rays), had residual objective neurological findings.

Summary of Results

1. The results of the analysis of 147 cases of head injuries, 100 of which were of the closed type and forty-seven of which had sustained compound wounds of the skull with brain injury, are tabulated and discussed.

2. It was found that headaches and dizzy spells were the two most common subjective complaints. Seventy-three patients complained of headache alone and thirty-nine of headache plus some other subjective symptom.

3. The symptoms of nervousness, anxiety, memory lapse and easy fatigueability were next in frequency.

4. Analysis of the total group of 147 patients disclosed that 9 per cent developed post-traumatic epilepsy. Thirty-three per cent had residual objective neurological findings of various types, 67 per cent complained of headache, 26 per cent complained of "blackout" or "dizzy spells" and 19 per cent complained of nervousness, anxiety, memory lapse or easy fatigueability.

5. In the group of seventy-three patients who did not have E. E. G. studies, all complained of headache but one. Thirteen had in addition to their headache some other somatic symptom which in the majority of cases was dizziness. Of this group twenty had compound skull and brain wounds, forty-nine had closed head injuries including lacerated scalp without fracture, nine had compound skull and brain wounds with obvious neurological residuals, while eleven patients had compound skull and brain wounds with no obvious residual findings. Four of this group developed post-traumatic seizures.

6. Of the group of seventy-four receiving E. E. G. 51 per cent were normal, 26.2 per cent slightly abnormal and 22.8 per cent were greatly abnormal. Of the twenty-six patients who had compound skull and brain injury 46 per cent were normal, 23 per cent slightly abnormal and 31 per cent greatly abnormal. Of the remaining forty-eight with closed head injuries 56 per cent had normal, 29.4 per cent slightly abnormal and 14.6 per cent greatly abnormal E. E. G.

7. The time between the date of head injury and E. E. G. examination was under six months for twenty-nine of the cases, six to twelve months for eighteen cases and nine patients were examined twelve to twenty-four months after their injuries. Six of the patients had E. E. G. studies seventy-two months or more after their head injuries.

8. Of the total group nine (12.1 per cent) developed post-traumatic seizures. Six of these patients had sustained compound skull and brain injury while three had suffered from closed head injury (Table IV). Five had greatly abnormal E. E. G. (two of them focal in the right and left frontal areas), three had slightly abnormal E. E. G. (one with focal abnormalities in the

right parietal lead) and one had a normal E. E. G. Of the five patients with gross E. E. G. abnormalities two had defects in their skull rays in the frontal region. Both these patients showed focal E. E. G. abnormalities in the same area. One other had a skull defect in the frontal region and had a generalized abnormal E. E. G., as did one other with a foreign metallic body in his right parietal region. One of the cases with a slightly abnormal E. E. G. showed a skull defect in the right parietal region by x-ray and his E. E. G. abnormality appeared in the same region.

9. Seventeen or 23 per cent of the group of seventy-four had residual neurological findings, and of this group seven had greatly abnormal E. E. G., only one of which was focal; five had slightly abnormal E. E. G., only one of which was focal, and 5 had normal E. E. G. Of the five that were normal, two showed x-ray evidence of foreign metallic objects and one had a bony defect in the right temporal region. One of the seven patients with objective neurological residuals and greatly abnormal focal type of E. E. G. showed x-ray evidence of a foreign metallic body in the left occipital region. One of the cases with slightly abnormal E. E. G. showed x-ray evidence of a bony defect in the right parietal region.

10. Of the group of seventy-four who had E. E. G. studies, the length of unconsciousness was unknown in fifty-four. Of these, thirty-one had normal E. E. G., eleven had greatly abnormal E. E. G., and twelve had slightly abnormal E. E. G. Of the twenty patients who had known periods of unconsciousness four had greatly abnormal, nine slightly abnormal and seven had normal E. E. G.

Conclusions

1. The highest degree of E. E. G. abnormality was noted in those patients (nine in number) who developed post-traumatic epilepsy, as 90 per cent of these were found to have greatly abnormal or slightly abnormal E. E. G.

2. In the cases with focal abnormalities in the E. E. G. there was a definite correlation with the site of injury as shown by x-rays of the skull.

3. No correlation could be made as to focal abnormality in the E. E. G. and the objective neurological findings. This was most probably due to the fact that most of the head injuries in this series were severe, leaving diffuse residual lesions rather than those of a focal type.

4. In the group of cases where the length of unconsciousness was known there appeared to be no definite correlation between the E. E. G. abnormality and the length of unconsciousness.

5. The E. E. G. abnormality was 21 per cent greatly abnormal and 21 per cent slightly abnormal in fourteen patients who voiced headache as their only complaint, as compared with 8 per cent greatly abnormal and 11 per cent slightly abnormal in twenty-six patients who voiced headache plus one or more other subjective neuropsychiatric complaints.

6. Headaches, dizzy spells, nervousness, anxiety, memory lapse and easy fatigueability were the most common subjective complaints, with the E. E. G. abnormality being highest in those patients who voiced headache as their only complaint.

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HEALTH EDUCATION

Health education and health services go hand in hand. Singly, they cannot do an effective job. Together, they complement each other and form an invaluable adjunct in the over-all health program. Health education without opportunities for medical consultation is sterile. Likewise, medical services exist in a vacuum unless they are called to the attention of the people.—TULA SALPAS, USPHS, *Indust. Hyg. Newsletter,* Aug., 1949.

PRIMARY TUMORS OF THE OPTIC NERVE

~~Report of Two Cases of Glioma~~

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PRIMARY tumors of the optic nerve may be divided into two main groups: intradural tumors (gliomas) and tumors of the nerve sheaths (meningliomas, or endotheliomas). The first full pathological examination of a tumor of the optic nerve was published by Van Graefe (1866). These tumors are rare. There have been less than 350 cases reported in all the medical literature.[4] Verhoeff[10] states that prior to 1932 only 300 cases were recorded. A survey of these cases in the literature shows that 80 per cent were gliomas, 17 per cent were meningiomas and 3 per cent were fibromas.[1]

Gliomas of the optic nerve usually occur during the first decade of life and many occur before the age of five years. From 85 per cent to 90 per cent occur before the age of twenty. They have a ratio of occurrence to choroidal sarcoma (malignant melanoma) of 1:200.[11] Most of these tumors are intraorbital but some have been reported in the intracranial portion of the nerve, and in the chiasm. These tumors tend to spread along the nerve so the point of origin is often obscure.

Meningiomas of the optic nerve sheaths, like meningiomas elsewhere, tend to occur later in life than gliomas do, and the symptoms usually develop after the first decade of life. More than 50 per cent occur after the age of thirty years. Meningiomas arising intraorbitally are extremely rare, and there are some observers who question whether they ever arise within the orbital cavity. Such origin, however, has been reported by Byers,[2] Hudson,[6] and more recently by Stallard.[8] Intracranial meningiomas of anterior and middle cranial fossae frequently extend into the orbit.

Fibromatosis and malignant melanoma arising in the optic nerve occur most frequently during adult life but are extremely rare tumors. Malignant melanoma arising in the choroid, however, is a fairly common tumor.

The female sex is more prone to develop optic nerve tumors. Hudson's series[6] shows a proportion of female to male of 70 to 43 in gliomata, 20 to 7 in meningiomata, and 5 to 1 in fibromata.

The signs and symptoms of optic nerve tumor depend on the site of origin of the tumor. When the tumor arises from the orbital portion of the optic nerve, there is slowly progressing unilateral exophthalmos along with profound visual loss. The exophthalmos is only partially due to the tumor mass itself. The reaction of other tissues of the orbit also add to the exophthalmos. Usually there is profound visual loss before the exophthalmos appears. However, in some cases of meningioma of the nerve sheath, vision is not destroyed until late. There is no impairment of the ocular muscle function until the exophthalmos has become quite marked. In the case of glioma there is a painless exophthalmos with the eye pushed straight forward while in many cases of meningioma, the eye is pushed down and in or down and out. This is because the meningioma has more of a tendency to expand into the orbit transverse to the nerve, while the glioma tends to spread along the nerve. There is no pulsation and a bruit is not heard over the area.

Primary optic atrophy or a papilledema is seen on ophthalmoscopic examination. The papilledema is due to venous obstruction which produces hemorrhages about the disc, elevation of the disc, white exudates and eventually a secondary optic atrophy. There are some cases of optic nerve tumor reported in which the ophthalmoscopic examination has been normal. A very striking feature of primary optic nerve tumor is the fact that visual loss is extremely great in comparison with the extent of primary optic atrophy or papilledema. A patient may have only a moderate degree of papilledema or primary optic atrophy and have no light perception or only very poor light perception.

Tumors limited to the intracranial portion of the optic nerve almost invariably produce a primary optic atrophy, but cases have been reported in which an ophthalmoscopic picture of unilateral papilledema was produced. I do not know the mechanism by which the papilledema is produced in these cases. Bilateral papilledema occurs only if the tumor is large enough to increase intra-

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Inaugural thesis presented before the Minneapolis Academy of Medicine, Minneapolis, Minnesota, December 19, 1949.

The author is indebted to Dr. William Peyton for helpful suggestions in preparing this paper.

cranial pressure, and may do so by its own mass or by obstruction to the circulation of cerebrospinal fluid.

The visual field examination is usually of little help in primary tumors of the optic nerve because the patient usually presents himself with one blind eye and a normal field in the other, but visual field examination is of great significance in tumors of the intracranial portion of the optic nerve which extend into the optic chiasm. In this case a field defect, usually a temporal hemianopsia, is found in the opposite eye.

Roentgenographic examination is of great importance in studying these cases. Gliomas of the optic nerve usually arise intraorbitally and extend centrally through the optic foramen very frequently enlarging the optic foramen. This finding of a unilateral enlargement of an optic foramen is of importance both diagnostically and from the standpoint of treatment.

Usually there are no x-ray findings in tumors limited to the intracranial portion of the optic nerve, but when the tumor becomes large there will be erosion of the anterior and posterior clinoid processes, deformity of the sella turcica, and erosion of the sphenoid ridge. The diagnosis of intracranial glioma of the optic nerve and chiasm is extremely difficult. Martin and Cushing[1] were able to suspect the condition in only one out of their seven cases.

The course of both gliomas and meningiomas is that of slow, steady gradual progression over a period of years. Temporary periods of rapid growth have been reported. The ultimate result if untreated is death due to intracranial extension. Neither gliomas or meningiomas metastasize.

On microscropic examination of gliomas, the essential neoplastic cell is a uni- or bi-polar spongioblast. These cells are spindle-shaped with oval nuclei and straight or sometimes corkscrew-like processes arising from each end. Verhoeff[9] described three main types, all of which may undergo transition from one into the other. These types are a finely reticular type similar to normal neuroglia, an exaggerated coarse reticular type, and a sickle-shaped cell type made up of course neuroglial fibers. Sometimes mitotic figures are seen. Cysts filled with mucinous-like substance are frequently found and may be very numerous. Because of this these tumors have been called myxiomas in the older literature, but this material does not show the staining reaction for mucin (Fleischer and Scheere[5]). Usually the septa are enormously thickened and made up of collagenous fibers arranged in an irregular manner into which glial fibers grow in all directions. The nerve fibers are spread apart compressed and stretched and as a rule are demyelinized at an early stage.

The microscopic examination of meningiomata of the optic nerve-sheaths shows cells with large vesicular nuclei and pale staining cytoplasm. These cells are arranged in syncytial masses, irregular lobules or ill-defined columns with a tendency to an arrangement in whorls. These are typically endothelial cells and arise from either the endothelial cells lining the sub-dural space or from the cells covering the arachnoid. These meningiomas tend to expand into the orbit and neighboring structures, but do not break through the pia to invade the optic nerve. The nerve fibers are damaged only by compression.

There have been several reports in the literature of glioma of the optic nerve associated with diffuse neurofibromatosis of Von Recklinghausen.

The treatment of primary tumors of the optic nerve is surgical. If the tumor is limited to the orbit, the blind eye together with the optic nerve and tumor may be enucleated. In some cases the globe has been retained by entering the orbit from the lateral side by means of the Krönlein operation. Also by means of a transconjunctival approach or through a skin incision made along the outer or upper orbital margin, the orbit can be explored fairly well. But a much better exposure of the lateral side of the orbit is obtained with the Krönlein operation. There are two main disadvantages to these transorbital approaches to the removal of these tumors. They are, first, the difficulty of complete excision of the tumor if it extends well into the apex of the orbit and, second, the danger of a cerebrospinal fluid leak into the orbit with ensuing meningitis.

If x-ray examination or exploration of the orbit by one of the above procedures demonstrates that the tumor has extended through the optic foramen, then intracranial operation should be considered. This is done through the transfrontal route (Dandy, Martin and Cushing[3]). The orbit is unroofed and the tumor is excised. If the globe must also be excised, this should be done after complete healing has taken place. X-ray therapy is of very limited value in the treatment of these tumors.

Two cases of primary tumor of the optic nerve from the neurosurgical and ophthalmological services at the University of Minnesota Hospital are presented.

Case 1.—A forty-one-year-old white woman was admitted to the University Hospital on January 29, 1946, and discharged on February 8, 1946. Her complaints on admission were failing vision in the right eye, frontal and occipital headaches, tinnitus, and paresthesia of the hands and feet. The chief complaint, however, was the failing vision in the right eye, gradually progressive since it was first noticed three months previously. The other symptoms had been present for three years. The general physical examination was negative with the exception of slightly reduced abdominal reflexes and slight extensor response to the Babinski test on the left. Routine laboratory work was done and found to be normal. Ophthalmoscopic examination revealed a 3 diopter papilledema in the right eye. There was venous engorgement and there were several small hemorrhages about the disc. In the left eye there was a slight elevation of the disc, but otherwise it was normal. The vision was 20/400 in the right eye and normal in the left. Visual field examination showed general depression for the right, but was normal for the left eye. The ventriculogram was normal. A diagnosis of multiple sclerosis was made, and the patient was put on histamine and discharged.

Vision continued to fail in the right eye, and for this reason she was readmitted on April 25, 1946, when it was found that vision was merely light perception in the right eye. A 3 to 4 diopter papilledema was again found in this eye.

The left eye was normal. Neurological examination revealed deep reflexes on the left, more active than on the right. It was thought that the patient probably had a sphenoid ridge tumor on the right. A transfrontal craniotomy exposed a tumor of the right optic nerve. This tumor extended from the optic foramen to the chiasm. The involved optic nerve was enlarged to about 1 cm., and just behind the optic foramen on the inferior surface of the nerve there was an additional bulbous enlargement. The tumor was excised as close to the chiasm as seemed safe without endangering vision in the other eye. The distal section of the optic nerve was made anterior to the optic foramen. It was felt that complete removal was impossible without severely damaging the optic chiasm. Microscopic examination showed the tumor to be a glioma made up of a diffuse proliferation of astrocytes. The patient was discharged on May 8, 1946. The patient was last seen in January, 1950 (three and one-half years after operation). She was well and working in a department store. Her only symptom was blindness of the right eye. On examining her eyes it was found that there was a secondary optic atrophy of the right optic nerve. There was no light perception in the right eye. The left eye was normal, her vision was 20/20 and no field defect could be detected on the perimeter with a 3 mm. white test object at 330 mm. or on the tangent screen with a 1 mm. white test object at 1000 mm.

Case 2.—The second case is that of a five-year-old white boy who was first seen at the University Hospital on March 24, 1949. The parents stated that the right eye had been very prominent for the past two weeks. It is probable that some exophthalmus was present for a considerably longer time than this. The mother had noticed that for the past two years the right eye would drift out when the child would look in the distance. A few days before admission the father had discovered that the child could not see with the right eye. No other symptoms were noted. The right eye on measurement was found to have an exophthalmos of 2 mm. as compared to the left eye. There was no light perception in the right eye, and the eye was turned outward and downward. There was limitation of motion when the eye was turned upward and outward. On examining the eye grounds, it was found that there was engorgement of the veins of the right eye and a papilledema of from 4 to 5 diopters. The left eye was normal. The physical examination was otherwise normal and routine laboratory work was negative. A ventriculogram gave normal findings. It was thought that the boy had some type of an orbital tumor, and on March 30, 1949, a right transfrontal craniotomy was performed. The right orbit was unroofed but the capsule was not opened and no tumor was found. After the operation the boy got along well, but the exophthalmus progressed so that by September 29, 1949, the exophthalmus of the right eye measured 6 mm. as compared to the other eye. The boy was readmitted to the hospital on November 14, 1949. A second craniotomy was done and the right orbit again explored through a right transfrontal craniotomy and the capsule of the orbit opened. A tumor of the optic nerve which extended from the globe to the optic foramen was found. This tumor was fusiform in shape and was about 12 mm. across at its widest portion. The tumor had elongated the optic nerve so that it was coiled upon itself within the muscle cone. It was excised at the globe and dissected free to the optic foramen where the nerve was again cut across. Because there was some question of the tumor possibly having extended through the optic foramen, an additional portion of the nerve within the optic foramen and proximal to the optic foramen was excised. Postoperatively, the patient has gotten along well. At the present time there is a ptosis on the right, and the right eye has remained somewhat irritable. Microscopic examination of this tumor showed glial cells, and a diagnosis of astrocytoma was made by the pathologist.

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THE SURGICAL MANAGEMENT OF MASSIVE HEMORRHAGE FROM GASTRIC AND DUODENAL ULCERS

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THE PURPOSE of this report is to review the clinical aspects of severe bleeding from the stomach and duodenum, and to report twenty-three cases of massive hemorrhage requiring emergency operations. All of the patients were admitted to the Minneapolis Veterans Hospital during a three-year period from April, 1946, to April, 1949.

In the literature there is confusion over the true meaning of the term "massive hemorrhage." Recent publications attempt to define, clarify, and restrict the term to a specific clinical picture. Amendola[4] believes that it implies a rapidly progressive exsanguination, and should be applied to a rapid loss of blood of such proportions as to cause unmistakable signs and symptoms of hemorrhagic shock. Hoerr, Dunphy, and Gray,[17] in defining their exsanguinated cases of massive hemorrhage, stressed the importance of shock, and the failure to stabilize the circulation with a limited number of blood transfusions. When the term is used in a less restricted sense, bleeding is extensive but less rapid, causing milder symptoms and signs of shock, with marked reductions in the hemoglobin, red cell, and hematocrit determinations. Such hemorrhages are an immediate threat to the life of the patient.

The cases reported in this review were grouped as moderate, severe, and exsanguinating forms of massive hemorrhage. This classification was based on the degree or severity of the following factors: presence of shock, rate of bleeding, persistence of hemorrhage, and recurrent episodes of acute massive bleeding. Since the limits of each group cannot be defined precisely, one encounters considerable difficulty in assigning the borderline cases to the proper group. The cases with moderate hemorrhage were patients with an episode of mild shock, a short period of bleeding at a rate not greater than 500 to 1,000 cubic centimeters of blood in twenty-four hours. Ordinarily these patients recover with proper medical management. Those grouped as severe massive hemorrhage had one episode of shock, bled for a longer period of time but at a rate not greater than 1,500 cubic centimeters of blood in twenty-four hours. If they were given 1,000 to 1,500 cubic centimeters of blood daily, they appeared to be in good circulatory balance. Some of these patients may recover when treated medically. They require close observation, and when the rate of bleeding increases, as evidenced by shock and an episode of acute massive hemorrhage, surgical intervention is indicated. The cases classified in the exsanguinating group were patients who may or may not have had long periods of steady bleeding but who bled at a rate greater than 1,500 cubic centimeters of blood in twenty-four hours. These were the patients with one or two episodes of acute massive hemorrhage with marked shock and an unstable circulation despite transfusions of 500 cubic centimeters, or more, of blood every eight hours.

Incidence and Mortality

Warren and Lanman,[32] in a comprehensive review of the literature, found that in patients admitted to the hospital for ulcer, the incidence of hemorrhage of any degree ranged from 11 to 40 per cent. The incidence of massive hemorrhage in the same group of collected figures was between 9 and 18 per cent. They explained the wide range of mortality under medical management (from 3 to 24 per cent) on the basis of whether the reports include cases with hemorrhage of any degree or only those with massive hemorrhages. In discussing surgical mortality rates, these authors further stressed the importance of knowing not only the degree of hemorrhage but at what time during the course of bleeding the operation was undertaken. Their collected mortality rates following operation for bleeding peptic ulcer ranged from 4.1 to 42.8 per cent, and this wide range seemed to be explicable solely on the basis of the varying degrees of exsanguination of the patients at the time of operation. In summary, these authors state that approximately 25 per cent of the patients admitted to the hospital for peptic ulcer have bleeding as a symptom, and approximately 10 per cent of all such admissions have massive hemorrhage. The mortality in all patients admitted for massive hemorrhage and treated medically is between 5 and 10

Read at the Surgical Staff Seminar of the Minneapolis Veterans Hospital, May 3, 1949.

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per cent. The mortality following operation for bleeding ulcer may be as low as 5 per cent if the patients are operated upon within twenty-four hours, or if elective operations are included, but it has approached 50 per cent if one considers those patients in a state of exsanguination and upon whom operation followed a prolonged and unsuccessful attempt at conservative management.

Other reports substantiate the dangers of massive hemorrhage. In Heuer's[20] series of 337 patients with serious or massive hemorrhage from peptic ulcer, forty-nine (15 per cent) of the patients presented a fatal type of hemorrhage. Amendola[4] reported eighty-four patients with massive hemorrhage treated expectantly with a mortality rate of 15 per cent. Bergh, Hay, and Trach[6] collected 2,565 patients with massive hemorrhage treated medically and found the mortality to be 10.2 per cent. For 214 patients treated surgically, the mortality was 29.8 per cent.

Recent publications indicate that the present nonoperative mortality rate in severe and massive hemorrhages has been lowered by more adequate blood replacement. Costello[10] reported a 4 per cent mortality; Fraser and West[14] found a 4.2 per cent mortality, while Meulengracht[25] gave the death rate under his free feeding regime as 2.5 per cent. For a clearer interpretation of mortality figures, there is a need for separating patients with severe hemorrhage from those with exsanguinating hemorrhage, as indicated by Hoerr, Dunphy, and Gray.[19]

The mortality following massive hemorrhage from peptic ulcer increases with the age of the patient. In patients under forty-five years of age the risk is less, though probably not nearly as slight as some reports indicate. In the younger age group, Bohrer[9] reported 548 patients with severe acute hemorrhage treated conservatively. The mortality rate below the age of forty-five years for bleeding gastric and duodenal ulcers was 20 per cent and 6 per cent respectively. Hansen and Pederson[16] found that of 393 patients with fatal hematemesis and melena in Copenhagen hospitals during a period from 1915 to 1937, 13 per cent were under forty years of age. In the group over forty-five and fifty years of age, Allen and Benedict,[3] Blackford and Williams,[8] and Chiesman[10] report mortality rates varying from 25 to 33 per cent. Jankelson and Segal[22] found the average age of patients with fatal bleeding ulcer to be fifty-four years. Meulengracht[25] recently reported twenty-six medical fatalities, twenty-five being over forty years of age and over half being over sixty. Holman[18] attributes the higher mortality in the older individuals to their greater susceptibility to complications and to the higher incidence of arteriosclerosis with failure of the eroded vessels to retract. He also found that the increased mortality among the older patients was not related to the chronicity of the ulcer.

TABLE I—COMPARISON BETWEEN MORTALITY RATES FOR BLEEDING DUODENAL AND BLEEDING GASTRIC ULCER (SANDUSKY AND MAYO[26])

Author	Duodenal per cent	Gastric per cent
Segal, Scott, Stevens[27]	3.7	30.0
Alberhart[1]	7.0	50.0
Welch and Yunick[33]	6.3	35.3
Sandusky and Mayo[26]	5.4	30.0

TABLE II—A COMPARISON BETWEEN THE MORTALITY RATES OF EARLY AND LATE OPERATION

Early Operation

Author	Cases	Deaths	Mortality per cent
Finsterer[13]	72	4	5.1
Heuer[20]	21	2	9.5
Gordon-Taylor[15]	18	1	5.5
Amendola[4]	11	1	9.0

Late Operation

Author	Cases	Deaths	Mortality per cent
Finsterer[13]	74	22	30.0
Heuer[20]	10	7	70.0
Gordon-Taylor[15]	11	4	36.0

The seriousness of recurrent episodes of massive hemorrhage is stressed by Holman[18,19] and Hunt.[21] The first hemorrhage also carries a considerable risk. Allen[2] reported a 45 per cent mortality from the first hemorrhage in his fatal cases. Blackford and Allen[7] found that 77 per cent of their fatalities occurred during the first bleeding episode.

The location of the ulcer is another factor influencing the mortality. Sandusky and Mayo[26] report three series of cases, in addition to their own, in which the mortality rates were calculated separately for gastric and duodenal ulcers. Table I shows that the mortality rate for combined medical and surgical treatment in bleeding gastric ulcer is five to eight times as great as that in bleeding duodenal ulcer.

Difficulties arise in evaluating the risk of surgical intervention because the number of contributions to the literature is small, and the statistical data are compiled upon patients with variable degrees of hemorrhage. Finsterer[13] was the first to show that in patients operated upon within forty-eight hours after the onset of hemorrhage, the mortality rate was significantly lower than in those patients operated upon later. Other reports have recently appeared in the literature to substantiate the fact that the mortality rate decreases when the period of medical treatment is shortened. Table II clearly shows the lower mortality in early operation, many patients being operated upon within twenty-four hours of the onset of bleeding.

Difficulty also arises when mortality figures of medical management are compared with surgical mortality rates. The two groups are not strictly comparable. Many patients operated upon early might have ceased bleeding had medical treatment been continued. Early operation can be justly criticized when performed on patients with only a moderate degree of acute hemorrhage. Conversely, when operation is performed late, after a prolonged period of medical management has failed, or as a last resort, the surgical mortality rate may be exceedingly high. Such cases should not be reported in terms of mortality rates but in terms of lives saved. These cases represent pure salvage; that is, the patients would not have recovered without operation.

Etiology and Pathology

Since the etiology of acute bleeding depends upon the presence of the ulcer, a definite underlying cause is unknown. Persistent slow bleeding and occasionally severe hemorrhage may be from the ulcer wall due to the erosion of small vessels in the submucosa or deeper layers of the stomach or duodenum. A massive hemorrhage can arise from a small anterior wall gastric or duodenal ulcer. The fact is well established that fatal hemorrhages are often due to penetrating posterior duodenal wall ulcers with erosion of larger vessels, such as the gastroduodenal and pancreaticoduodenal arteries. If the fatal bleeding is of gastric origin, the ulcers penetrate the gastrophepatic ligament or pancreas since they are usually located on the lesser curvature or posterior wall. They may produce an erosion of the right or left gastric arteries, and rarely of the splenic artery.

The ulcer is usually deep and hard, with a base of dense fibrous scar tissue. In the base of the ulcer there may be a thickened sclerotic artery with a loosely attached occluding blood clot. The digestion and dislodgment of the blood clot will produce recurrent episodes of bleeding. The sclerotic vessel surrounded by dense fibrous tissue in the ulcer base prevents retraction of the vessel and interferes with the natural mechanism of hemostasis.

Occasionally the source of bleeding is obscure and not visible to the surgeon but may be demonstrated by careful gross and microscopic examination of the resected specimen. A gastritis is frequently associated with gastric and duodenal ulcers. Rarely, when the ulcer is not found, a severe antral gastritis with or without ulceration will be the source of bleeding.

In 231 cases of sudden massive hemorrhage, Allen[2] found the lesions that caused the bleeding to be the following: duodenal ulcer, gastric ulcer, gastric carcinoma, esophageal varices, gastrojejunal ulcer, gastritis, and leiomyosarcoma.

Diagnosis

The problem of determining the source of bleeding may be a difficult one. As desperate as these cases may seem, every reasonable effort should be made to establish the diagnosis during the period of medical management and blood replacement.

The history may disclose a presumptive or a positive diagnosis of gastric or duodenal ulcer. A bleeding gastrojejunal ulcer is strongly considered when the patient has had a previous gastroenterostomy. A carefully taken history and a complete physical examination may suggest a gastric carcinoma or cirrhosis of the liver with bleeding esophageal varices. Useful information can be obtained from liver function tests within twenty-four hours. However, the diagnostic and therapeutic problem is frequently so urgent that many of these procedures are not done. Gastroscopy may be dangerous, unwise, and often impossible. Heuer[20] had three fatal cases of recurrent massive hemorrhage follow fluoroscopic examination and is opposed to it. On the contrary, Hoerr, Dunphy, and Gray,[17] and Amendola[4] advocate a swallow of barium with fluoroscopic and x-ray examination of the esophagus, stomach, and duodenum performed without palpation or pressure as a final diagnostic effort. Obviously, the patient should not be in shock during this examination. If necessary, the examination can be done during a blood transfusion. Allen[2] found the x-ray examination of the esophagus by the method of Schatzki of value in the diagnosis of esophageal varices. Fluoroscopic examination was performed in a few of our cases without dangerous consequences. Though the examination has obvious limitations, it helped in two cases to demonstrate lesions which were confirmed later.

Management

The management of patients with massive hemorrhage from the stomach and duodenum requires teamwork and close observation by both the internist and the surgeon. Since the initial treatment is medical, the patients are admitted to the medical service of most hospitals. The greatest single advancement in medical therapy has been the liberal use of blood transfusions, with emphasis on complete blood replacement. The patient's appearance and reaction to the blood loss are noted. The pulse and blood pressure are taken at fifteen minute intervals and recorded. An attempt is made to ascertain the source of bleeding. If bleeding stops permanently, medical management is continued and elective surgical intervention is considered later. Further discussion of medical therapy is not a part of this review.

To differentiate patients in whom the hemorrhage is likely to prove fatal, or those needing surgical intervention, from those in whom it will cease under proper medical therapy, has proved most difficult. This is due to the variable course taken by these patients and the different reactions of patients to the blood loss. The course of the hemorrhage falls into two main groups: (1) intermittent bleeding, and (2) continuous bleeding. There are periods of acute recurrent massive hemorrhage occurring in either group. Such a variable pattern in the course of a bleeding episode is a warning that a sudden fatality from exsanguination may occur at any time.

Surgical Indications

A clearer definition of the surgical indications is urgently needed. Which patient should be operated upon, and when should the operation be performed? These are the basic points in the management of these cases and remain most difficult to solve.

There are important factors in addition to the age of the patient and the duration of bleeding that help to determine which patient should be submitted to operation. These important criteria are the presence of syncope or shock, clinical evidence of persistent bleeding, and clinical evidence of acute recurrent episodes of massive hemorrhage. Patients who continue to bleed following a massive hemorrhage, and/or have a second massive hemorrhage within a day or two, constitute a dangerous group in which sudden fatalities may occur despite desperate efforts to replace blood. Persistent or recurrent shock is an exceedingly ominous sign associated with severe uncontrolled bleeding.

Shock is present when tachycardia, hypotension, pallor, sweating, fainting, or cold clammy extremities are observed. Shock may not be apparent until the pulse and blood pressure are taken after the patient has been in the upright position for a few minutes.

When the patient is bleeding acutely and blood is being replaced, the hemoglobin, red cell, and hematocrit determinations are not reliable. On admission to the hospital and during an interval between bleeding, these determinations are more accurate estimations of the degree of exsanguination.

Hoerr, Dunphy, and Gray[17] have stressed the importance of the rate of hemorrhage. Their concept implies a time factor, and they believe that the rate of blood loss is more important than the quantity of blood loss. It is their opinion that patients who fail to maintain a stable circulation despite continued transfusions of not more than 500 cubic centimeters of blood every eight hours are considered to be in a state of exsanguinating hemorrhage. It is their belief that these are the patients upon whom surgery must be employed. Therefore, the rate of bleeding and recurrent syncope or shock are extremely valuable factors that should be considered in making the decision to operate. If operation is delayed in the presence of these ominous signs, the mere replacement of blood may fail to fortify the patient to withstand a major operative procedure.

Hoerr, Dunphy, and Gray[17] believe that immediate transfusion and early operation is justifiable in selected young patients in good condition who are bleeding moderately. This plan not only checks the bleeding but also provides the corrective subtotal gastrectomy. If such a patient is seen late in the course of a hemorrhage, it is wiser to apply the previously mentioned criteria for operation.

When the decision to operate is made, the patient is prepared for emergency operation by rapid and massive blood transfusions and transfusion is continued throughout the operative procedure.

Operative Procedures

Palliative operative procedures to control hemorrhage such as ligation of the larger arteries supplying the ulcer, and ligation of the bleeding vessel in the base of the ulcer by transfixion or encircling sutures have not proved uniformly successful when used as the sole measure to control hemorrhage. Following suture of the bleeding vessel in the ulcer base, the ligature may cut through or be digested, resulting in a recurrence of hemorrhage during the first or second week after operation. When an active bleeding point is found in a non-resectable, penetrating ulcer, ligation of the vessel for the immediate arrest of hemorrhage is a valuable adjunct to subtotal gastrectomy.

When the bleeding ulcer is located high on the lesser curvature of the stomach, Heuer[20] prefers local excision of the ulcer rather than ligation because it is a better procedure for permanently controlling the hemorrhage. Gastric and duodenal ulcers adjacent to the pyloris cannot be excised locally and repaired without the danger of obstruction, which necessitates an additional procedure, preferably a gastrojejunal anastomosis. In these cases he recommends subtotal gastrectomy.

Amendola[4] believes that with adequate blood transfusion and modern anesthesia, a patient who cannot be safely conditioned for major gastric surgery should not be subjected to the added risk of an operative procedure. Subtotal gastrectomy with excision of the ulcer is the procedure of choice from the standpoint of controlling hemorrhage and permanently curing the patient.

Situations arise in which a large, fixed penetrating ulcer located on the posterior wall of the duodenum or stomach cannot be excised. The adhesions and firm fixation of these ulcers to the pancreas and the common bile duct make their removal hazardous and increases the risk of the operation. A fixed penetrating posterior duodenal wall ulcer may be excluded, left in situ, and the duodenum proximal to the ulcer closed by employing the technique of Wangensteen.[29] When the ulcer is near the line of resection, making the duodenum difficult to close, Wangensteen[28] prefers to seal the posterior duodenal perforation by suturing the anterior wall of the duodenum to the edge of the fixed posterior wall and capsule of the pancreas so as to roll the anterior wall into the perforation and pancreas. The exclusion operation is then followed by subtotal gastrectomy. If the penetrating posterior duodenal wall ulcer is not resectable and is located high, immediately adjacent to the pylorus, the ulcer base may be left behind and the resection performed around it. The duodenum distal to the ulcer is then mobilized sufficiently to permit adequate closure of the duodenal stump. In such cases the technique of Judin reported by Gordon-Taylor[15] has been recommended as an alternate procedure for closing the duodenal stump. In Judin's technique the duodenum is freed from the base of the penetrating ulcer and closed into a conical form with a continuous suture. The cone is converted into a snail-like form which is employed as a tampon of the ulcer base as it is sutured to the capsule of the pancreas. The closure of the duodenum in any of the penetrating ulcers may result in an exceedingly difficult and laborious task. A wiser choice may be a transection of the stomach 4 or 5 centimeters proximal to the pylorus, excision of the antral mucosa, and closure of the pylorus and gastric stump according to the technique of Wangensteen.[30] McNealy[24] advocates plicating or folding in the anterior wall of the duodenum so as to act as a tampon to the ulcer crater. McKittrick[23] uses a two-stage operation in some of these difficult cases. He removes the gastric antrum at a second stage following the performance, in selected cases, of a first-stage exclusion and partial gastrectomy. When a large gastric ulcer penetrates the pancreas and is not resectable, the ulcer can be left behind and a subtotal gastric resection performed around it.

A controversial therapeutic problem arises when the source of bleeding cannot be found after a careful exploration of the gastrointestinal tract. Amendola[4] believes that if the source of bleeding cannot be found after thorough inspection of the duodenal and gastric mucosa, the stomach and duodenum should simply be closed without further operative procedure. A small ulcer high on the lesser curvature or low in the duodenum may be overlooked by this method of examination. Wangensteen[28] has observed small posterior duodenal wall ulcers that cannot be felt or seen until the duodenum is separated from the pancreas. These occult posterior duodenal wall ulcers should be considered in cases where the cause of gastrointestinal hemorrhage remains obscure. In Wangensteen's[31] Listerian Lecture, cases of massive hemorrhage were cited which were due to superficial gastric erosion, arterial thrombosis of a gastric vessel, or ulcerative gastritis. In the presence of the acid-peptic digestive activity of the gastric juice, these lesions have been observed to be the source of bleeding. Wangensteen[31] states that occult hemorrhage from the alimentary canal frequently has its origin in the stomach and recommends subtotal gastric resection as the therapeutic measure in many such instances. Therefore, subtotal gastrectomy may be indicated purely on the basis that the stomach and duodenum are the most likely sites of obscure, occult hemorrhage. Many surgeons may criticize or question the advisability of doing so formidable a procedure on such meager indications. In all probability an unnecessary gastrectomy may be eventually done when this plan is followed, but, in the end, more lives may be saved.

Review of Cases

Although the number of cases of massive hemorrhage treated by emergency subtotal gastrectomy at the Minneapolis Veterans' Hospital over a three-year period from 1946 to 1949 is small, a total of twenty-three cases, there are certain instructive clinical points of interest shown in the following review.

A. *Sex*
All or 100 per cent of the patients were males. Such a sex incidence is to be expected in a hospital of this type.

B. *Age*
Range, 24 years to 72 years
Average age—47.2 years
Under 45 years of age, 10 cases—43.5%
Over 45 years of age, 13 cases—56.5%

C. *History of Uulcer*
Positive, 13 cases—56:5%
Suggestive, 7 cases—30.4%
None, 3 cases—13.1%

D. *History of Massive Hemorrhages*
First hemorrhage, 16 cases—69.5%
Second hemorrhage, 4 cases—17.4%
Third hemorrhage, 3 cases—13.1%

E. *Lowest Hemoglobin and Red Cell Determinations*
A hemoglobin of 8.8 grams or a red cell count of 2,500,000 and over, 13 cases—56.5%
Under that amount, 10 cases—43.5%

F. *Duration of Bleeding Preoperatively*
Range, 12 hours to 32 days
Under 48 hours, 6 cases—26.1%
Over 48 hours, 17 cases—73.9%

G. *Shock*
One episode of shock, 15 cases—65.2%
Two episodes of shock, 8 cases—34.8%

H. *Amount of Blood Preoperatively*
Range, 1,000 c.c. to 8,500 c.c.
Average, 3,826 c.c.

I. *Amount of Blood During Operation*
Range, 100 c.c. to 2,500 c.c.
Average, 1,383 c.c.

J. *Classification or Group*
Exsanguinating hemorrhage, 15 cases—65.2%
Severe hemorrhage, 6 cases—26.1%
Moderate hemorrhage, 2 cases—8.7%

K. *Site of Bleeding*
Duodenal ulcer, 11 cases—47.8%
Gastric ulcer, 8 cases—34.7%
Gastritis, 3 cases—13.1%
Undetermined, 1 case—4.4%

L. *Operative Procedure*
Subtotal gastrectomy, excision of ulcer, or source of bleeding, 13 cases—56.5%
Subtotal gastrectomy, exclusion of ulcer, 9 cases—39.1%
Subtotal gastrectomy, site undetermined, 1 case—4.4%

M. *Complications*
Five complications in 5 cases—21.7%

1. Phlebothrombosis left leg, ligation of left superficial femoral vein
2. Partial wound disruption, secondary closure of the wound
3. Wound infection
4. Hepatitis, homologous serum jaundice following administration of plasma for shock by the patient's local physician before admission to the hospital
5. Postoperative hemorrhage for 24 hours, stopped spontaneously

N. *Mortality Results*
Mortality, all cases—23 cases, 2 deaths—8.7%
Mortality, exsanguinating cases, 15 cases, 1 death—6.7%
Mortality, moderate and severe cases, 8 cases, 1 death—12.5%
Mortality according to age:
  Under 45 years, 10 cases, no deaths
  Over 45 years, 13 cases, 2 deaths—15.4%
Mortality according to time of operation:
  Early operation (under 48 hours) 6 cases, 1 death—16.7%
  Late operation (over 48 hours) 17 cases, 1 death—5.9%

O. *Causes of Death*
First case—Atelectasis, peritonitis, toxemia, shock (no autopsy)
Second case—Luetic aortitis, heart block, sudden death on operating table—(autopsy)

Discussion of Cases

With the exception of two cases of moderate hemorrhage, all cases in this report were examples of severe and exsanguinating hemorrhage. The indications for operation in these patients were individualized, based on the degree and rate of hemorrhage. Syncope or a period of hypotension and tachycardia constituted shock, which was an important sign and was present in all patients. Recurrent shock was the most valuable single sign. Failure to stabilize the circulation with 500 cubic

TABLE III.

No.	Admission	Age Sex	History of Ulcer	Massive Hemorrhages	Lowest Hgb RBC Hematocrit	Shock	Duration of Preoperative Bleeding	Blood Given Preoperatively	Blood During Operation	Classification
1.	4/25/46	51 M	Suggestive	First	5.3 gms. (33%) 1.9 million —	Once	32 days	5,000 cc.	2,000 cc.	Exsanguinating
2.	7/15/46	49 M	Positive	First	11.2 gms. (72%) 3.3 million —	Twice	36 hours	2,500 cc. blood 1,000 cc. plasma	1,000 cc.	Exsanguinating
3.	9/15/46	33 M	None	First	4.9 gms. 1.5 million —	Twice	22 days	7,500 cc.	1,500 cc.	Exsanguinating
4.	3/10/47	51 M	Positive	First	8.4 gms. (54.2%) 2.8 million 29%	Once	15 days	1,000 cc.	1,500 cc.	Severe
5.	3/25/47	55 M	Suggestive	First	11.2 gms. (72%) 3.5 million 33%	Twice	84 hours	3,500 cc.	1,500 cc.	Exsanguinating
6.	4/5/47	59 M	Positive	First	8.1 gms. (52%) 2.7 million —	Twice	6 days	2,500 cc.	2,500 cc.	Severe
7.	5/26/47	52 M	Suggestive	First	9.8 gms. (63%) 3.1 million —	Twice	48 hours	2,000 cc.	1,200 cc.	Exsanguinating
8.	6/25/47	57 M	Positive	First	12.6 gms. (81%) 4. million 39. %	Once—prolonged	18 hours	4,000 cc.	2,000 cc.	Exsanguinating
9.	8/4/47	36 M	Positive	Third	5.3 gms. (34%) 1.6 million 28. %	Once	4 days	3,500 cc.	1,500 cc.	Exsanguinating
10.	10/4/47	24 M	Suggestive	First	7.7 gms. (49%) 3.3 million —	Once	7 days	3,000 cc.	1,500 cc.	Severe
11.	1/ /48 N & M Service	30 M	None	First	8.8 gms. (56%) — —	Twice	6 days	8,500 cc.	1,000 cc.	Exsanguinating
12.	2/13/48	58 M	Positive	First	8.8 gms. (56%) 3.3 million 30. %	Once	24 hours	2,500 cc.	100 cc.	Severe
13.	2/13/48	59 M	Suggestive	Second	3.8 gms. (24.8%) 2. million 13. %	Once	10 days	4,000 cc.	2,000 cc.	Exsanguinating
14.	4/24/48	71 M	Positive	Second	10. gms. (65%) 3.8 million 34. %	Once	9 days	2,000 cc.	1,000 cc.	Severe
15.	5/13/48	60 M	Positive (perforation)	First	7. gms. 2.7 million 21. %	Twice	14 days	6,000 cc.	1,500 cc.	Exsanguinating
16.	6/3/48	26 M	Positive	Second	10. gms. — 31. %	Once	4 days	2,000 cc.	1,000 cc.	Moderate
17.	6/10/48	68 M	Positive (gastro-enterostomy)	First	9. gms. 2.7 million 27. %	Once	5 days	5,000 cc.	1,500 cc.	Exsanguinating
18.	6/11/48	72 M	Positive	Third	12. gms. — —	Once	58 hours	5,000 cc.	1,000 cc.	Exsanguinating
19.	2/2/49	28 M	None	First	9.7 gms. (62%) — 30. %	Once	12 hours	2,000 cc.	1,500 cc.	Moderate
20.	2/3/49	43 M	Positive	Second	10. gms. — —	Once	26 hours	3,500 cc.	1,000 cc.	Exsanguinating
21.	2/8/49	39 M	Suggestive	First	6. gms. 2.5 million 25. %	Twice	6 days	5,000 cc.	1,500 cc.	Exsanguinating
22.	3/4/49	32 M	Suggestive	Third	9.3 gms. 3.8 million 40. %	Once	6 days	4,000 cc.	1,500 cc. 3,000 cc. postoperative	Exsanguinating
23.	3/20/49	32 M	Positive	None	8.2 gms. — —	Once	6 days	3,000 cc.	1,000 cc.	Severe

TABLE III.

Surgical Indications	Bleeding Site	Operative Procedure	Result	Complications	Comments
Severe hemorrhage, improved, Massive hemorrhage, persistent hematemesis and melena	Gastric ulcer	Subtotal gastrectomy Excision of ulcer 5/4/46	Recovered	Phlebothrombosis, ligation left superficial femoral vein	None
Sudden massive hemorrhage Persistent bleeding Second massive hemorrhage	Duodenal ulcer	Subtotal gastrectomy Excision of ulcer 7/16/46	Recovered	Partial wound disruption, secondary closure	Ulcer inspected, stopped bleeding.
Massive hemorrhage, stopped Massive hemorrhage, stopped Third massive hemorrhage and persistent bleeding	Subacute diffuse gastritis	Subtotal gastrectomy, Excision areas of hemorrhage 10/4/46	Recovered	None	Focal mucosal and submucosal areas of hemorrhage
Persistent melena— Sudden severe hemorrhage and shock	Gastric ulcer	Subtotal gastrectomy Excision of ulcer 3/19/47	Recovered	None	Vessel in ulcer base
Massive hemorrhage, bleeding subsided Second massive hemorrhage and shock	Gastric ulcer	Subtotal gastrectomy Excision of ulcer 3/28/47	Recovered	Wound infection	Artery in ulcer crater
Severe melena, stopped bleeding Recurrent melena and shock	Severe antral gastritis	Subtotal gastrectomy Excision bleeding area 4/11/47	Recovered	None	None
Massive hemorrhage, Persistent hematemesis, melena and shock	Gastric ulcer	Subtotal gastrectomy Excision of ulcer 5/28/47	Recovered	None	Artery in ulcer base
Sudden severe massive hematemesis, melena, and shock	Gastric ulcer	Subtotal gastrectomy Excision of ulcer 7/3/47	Recovered	None	Massive hemorrhage 8 days after closure of perforated ulcer. Blood clot found in ulcer crater.
Persistent melena— Massive hemorrhage and shock	Gastric ulcer	Subtotal gastrectomy Excision of ulcer 8/7/47	Recovered	None	None
Persistent melena, and mild shock	Duodenal ulcer	Subtotal gastrectomy Exclusion of ulcer 10/10/47	Recovered	None	None
Persistent hematemesis and melena Massive hemorrhage and shock	Gastric ulcer	Subtotal gastrectomy Excision of ulcer 2/10/47	Recovered	None	Negative operative findings, Pathologist—small ulcer with vessel in crater
Persistent massive hematemesis, melena and shock	Duodenal ulcer	Subtotal gastrectomy Exclusion of ulcer 2/13/48	Died on table. Luetic aortitis & heart block, autopsy	—	Posterior wall ulcer inspected, not bleeding. Large amount blood given preoperatively.
Persistent severe melena	Duodenal ulcer	Subtotal gastrectomy Exclusion of ulcer 2/16/48	Recovered	None	None
Persistent moderate hematemesis, melena, and shock	Duodenal ulcer	Subtotal gastrectomy Exclusion of ulcer 4/26/48	Recovered	None	Duodenum opened, ulcer not bleeding
Massive hemorrhage, persistent hematemesis and melena, Second massive hemorrhage and shock	Duodenal ulcer	Subtotal gastrectomy Exclusion of ulcer 5/20/48	Recovered	Hepatitis, homologous serum jaundice following plasma given by local M.D.	Duodenum opened, ulcer not bleeding—healed gastric ulcer.
Persistent melena and shock	Duodenal ulcer	Subtotal gastrectomy Excision of ulcer 6/7/48	Recovered	None	See text—
Persistent hematemesis, melena and shock	Duodenal ulcer	Subtotal gastrectomy Exclusion of ulcer 6/12/48	Died—3rd P.O. day	Atelectasis, peritonitis, shock, no autopsy	Gastrojejunal ulcer healed.
Persistent hematemesis, melena, and shock	Duodenal ulcer	Subtotal gastrectomy Exclusion of ulcer 6/13/48	Recovered	None	Duodenum opened, ulcer not bleeding.
Massive hemorrhage following gastroscopy, suspected gastric neoplasm by x-ray	Severe antral gastritis	Subtotal gastrectomy Excision of ulcerations 2/11/49	Recovered	None	Suspected granulomatous lesion at operation. Path. report: acute suppuration and superficial ulceration.
Massive hemorrhage, Persistent hematemesis and melena	Duodenal ulcer	Subtotal gastrectomy Exclusion of ulcer 2/4/49	Recovered	None	Alcoholic, fatty liver, no portal hypertension.
Massive hemorrhage, ceased bleeding. Second massive hematemesis, melena and shock	Duodenal ulcer	Subtotal gastrectomy Excision of ulcer 2/11/49	Recovered	None	None
Massive hematemesis, persistent melena, and shock	Undetermined	Subtotal gastrectomy 3/10/49	Recovered	Bled postoperatively 24 hours, probably from the anastomosis.	None
Persistent melena, mild hematemesis. Shortage AB rh-blood	Gastric ulcer	Subtotal gastrectomy Excision of ulcer 3/21/49	Recovered	None	Duodenal ulcer present, but not bleeding.

centimeters of blood every eight hours indicated a dangerous rate of bleeding and provided a definite surgical indication.

Hemoglobin, red cell and hematocrit determinations were of value in estimating the state of exsanguination on admission to the hospital and between episodes of severe bleeding. During periods of massive hemorrhage and liberal blood replacement with rapid changes in blood volume, these determinations were less reliable measurements of the degree of hemorrhage, and were often not calculated during periods of severe bleeding.

The age of the patient was considered an important factor, although the selection of the patients for operation was not based on this factor alone, as is shown by the fact that 43.5 per cent of the patients were under 45 years of age. One must remember that the younger patient occasionally dies from massive hemorrhage. Hoerr, Dunphy, and Gray[17] believe the important point concerning older patients is that they are more likely to develop an exsanguinating hemorrhage and need closer observation on this account. If the bleeding is not exsanguinating in character, it is equally important to avoid the risk of unnecessary surgical procedures in the older patient. Therefore, the fact that the patient is past middle life is not an absolute indication for prompt operation but a warning that there is greater danger of an exsanguinating hemorrhage.

The duration of bleeding was a factor of less importance in this series, since 73.9 per cent of the patients were operated upon after Finsterer's forty-eight hour period had passed. The longer interval of bleeding is explicable solely on the striking dissimilarity and wide variations in the degree of hemorrhage in these patients. Some patients bled slowly for days and then had a massive hemorrhage. Others had a massive hemorrhage, stopped bleeding for a few days, and had a second massive hemorrhage. The decision to operate within forty-eight hours is a difficult one to make since the fatal type of hemorrhage cannot always be differentiated from bleeding which will stop with nonoperative measures. Our patients were selected for operation after careful consideration of all the important factors and indications for operative intervention, with emphasis on the individual behavior pattern of each patient.

Subtotal gastrectomy, with removal of about 75 per cent of the stomach including the pylorus, was performed in all of the patients. This procedure was selected as the one most likely to succeed in controlling hemorrhage and curing the patient. The source of bleeding was removed in thirteen cases. Nine duodenal ulcers were treated by exclusion. They were judged to be technically too difficult to remove without dangerously increasing the risk of the operation. It is well known that bleeding stops when the exclusion operation is performed, as it did in all of our cases. Diversion of the gastric secretions from the ulcer will prevent repeated digestion of the blood clot and intermittent hemorrhage. The ulcer, unmolested, eventually heals.

Subtotal gastrectomy for massive hemorrhage is a formidable procedure and should not be attempted by untrained surgeons or performed in hospitals inadequately staffed or equipped to cope with this emergency. Our patients were operated upon by the chief surgeon, consulting surgeon, or the senior surgical resident of the hospital. The patients were quite well prepared for the emergency operation as judged by our present-day standards. The blood loss was corrected by massive transfusions prior to operation and the anesthesia preparation was adequate. In a few patients the intestinal tract, which was usually full of blood, was distended with gas. One patient had a greatly distended transverse colon which interfered with the surgical procedure. The colon was decompressed aseptically and the operation was continued uneventfully.

The favorable mortality rate in our series is due to the excellent anesthesia administered by trained anesthetists, a carefully executed operation, and the employment of the recent advances in postoperative management. The anesthesia used was a mixture of pentothal-curare supplemented with endotracheal nitrous oxide and 50 per cent oxygen as advocated by Baird, Johnson, and Van Bergen.[5] Intragastric siphonage was maintained throughout the operation and, postoperatively, until normal peristalsis returned. A large left subcostal incision was used. The resection was done according to the technique recommended by Wangensteen.[28,29] Bowel continuity was reestablished by an end-to-side gastrojejunostomy, utilizing a short afferent loop, retrocolic, antiperistaltic, Hofmeister-Pólya, 6 centimeter, aseptic anastomosis. Interrupted, fine, nonabsorbable suture material was used throughout, including the closure of the abdominal wound. One gram of streptomycin and one million units of penicillin in solution were injected into the peritoneal cavity. Blood was administered throughout the operation and whenever it was needed postoperatively. Electrolytes, vitamins, protein, streptomycin, and penicillin were given postoperatively. Early ambulation was practiced. A bland diet was usually started on the fourth postoperative day. The patients were weighed each day and maintained in a balanced state of hydration.

In a few cases the aseptic technique was broken, momentarily, when the duodenum was opened to inspect the posterior wall for active bleeding. Of the few patients inspected in this manner, no patient was found to be bleeding actively during the operation. Had such a bleeding point been encountered, transfixion and ligation of the vessel would have been done for immediate control of the hemorrhage. Some of the resected gastric ulcers showed an eroded vessel in the base of the ulcer. Now and then the vessel was occluded by a blood clot or an early thrombus.

During the three-year period of this study, two deaths occurred from massive hemorrhage of ulcer origin on the medical service of this hospital according to Ebert.[12] One death was that of an orderly who refused operation. The second death was in a case of meningiovascular syphilis with cerebral thrombosis. The patient was admitted in coma and died within a few hours.

In the series operated upon, one death was due to luetic aortitis. Heart block occurred during the operation and the patient died on the table. The second patient died of atelectasis, peritonitis, and toxemia three days after the operation. The previous gastroenterostomy in this patient was difficult to take down. The operation was long, arduous, and was not performed aseptically.

A few patients with severe hemorrhage in this series might have recovered without operation. Unquestionably, the two patients with moderate hemorrhage would have recovered without operation. They were young, healthy males, with early moderate hemorrhage. The operation was done not only to check the bleeding but to provide the corrective gastrectomy. In one patient the preoperative diagnosis was probable neoplasm. The source of bleeding later proved to be a chronic antral gastritis with suppurative inflammation and superficial ulceration. Three patients with hemorrhage due to gastritis were cured by subtotal gastrectomy. At least one of these patients was in such a precarious condition that a fatal outcome seemed inevitable without operation.

Whether any of the exsanguinated patients would have lived without surgical intervention is not known. Based on a study of the individual records, the surgical recoveries represent pure salvage, that is, the patients would not have recovered without operation. Furthermore, operation was resorted to after medical treatment had failed. For these reasons, surgical and medical mortality rates are not comparable. One death in fifteen exsanguinated patients, a mortality rate of 6.7 per cent, indicates that our present plan of surgical management has merit, is relatively safe, and should be continued.

Summary and Conclusions

1. The majority of patients with severe gastric and duodenal hemorrhages will recover if treated conservatively by proper medical management. However, approximately 5 to 10 per cent of patients treated conservatively for massive hemorrhage of ulcer origin will have a fatal termination.

2. The incidence of death in bleeding gastric ulcer is higher than in bleeding duodenal ulcer.

3. There appears to be a direct relationship between the duration of the bleeding and the age of the patient to the mortality rate. The increased mortality is noted in patients bleeding longer than forty-eight hours and in patients over forty-five years of age.

4. The more serious massive hemorrhages are arterial in origin and arise usually from the gastroduodenal, pancreaticoduodenal, and the right or left gastric arteries or their major branches.

5. The indications for surgical intervention must be individualized and conservative in order to avoid unnecessary operation. The duration of bleeding and the age factors are important; however, greater emphasis is being placed on the selection of patients for operation according to the rate of bleeding, recurrent hemorrhage, and shock. The failure to maintain a stable circulation with a transfusion of 500 cubic centimeters of blood every eight hours indicates an exsanguinating type of hemorrhage. These are the patients in whom operation is most often employed after the circulation is stabilized by massive transfusions.

6. The operation of choice is a subtotal gastric resection with removal of the ulcer. If it appears impossible to resect the ulcer, subtotal gas-

trectomy with exclusion of the ulcer will control hemorrhage and cure the patient.

7. With the exception of early operation, the mortality rate of emergency surgery in massive gastric and duodenal hemorrhage of ulcer origin has been high. Since the operative procedure is employed after medical management has failed and as a last resort to save life, surgical mortality should not be compared with the mortality of medical management.

8. Twenty-three patients with massive hemorrhage were reported with two deaths, a mortality rate of 8.7 per cent for the entire group. There were fifteen patients with exsanguinating hemorrhages with one death, a mortality rate of 6.7 per cent. The one death in the exsanguinating group was an operative death from peritonitis following a difficult resection in the presence of an old gastroenterostomy. The one death in the group with severe massive hemorrhage was an unavoidable cardiac death from luetic aortitis and heart block that occurred on the operating table. Although this series is small, the mortality rate is low and is due to the recent improvement in anesthesia, surgical technique, and postoperative care.

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SOCIALISTIC MEDICINE COSTS BRITAIN MORE THAN SEVEN TIMES COLLECTIONS

Britain's socialistic provision for free medical and dental care for its citizens now costs that country 300 million pounds sterling annually, or about twice the amount originally estimated by the proponents of this paternal plan, Aneurin Bevan, Minister of Health, has admitted.

Minister Bevan explained that one of the reasons why the cost of the health service the first year was so much higher than had been estimated, is the fees paid to physicians were in certain cases raised above the level originally scheduled. However, the chief cause of the high cost of the socialistic scheme was the overwhelming use made of it by the public. Overnight, doctors, dentists, oculists, pharmacists and the hospitals became very popular with the people as health service became "free" and everyone wanted all they could get. In the first year 187 million prescriptions were dispensed free, 5,260,000 requests for eye-glasses were supplied and the year's end found 3,000,000 more on order, dentists took care of 8,500,000 free patients, and 5,071 wigs were supplied to baldheaded folk.—*Insurance Economics Surveys*. February, 1950.

DISSECTING ANEURYSM OF THE AORTA

Report of a Case Diagnosed Two and One-half Years Before Death By Rupture

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THERE ARE few more dramatic episodes in the field of medicine than that produced by a dissecting aneurysm of the aorta. Males are most frequently affected. Baer and Goldburgh[2] report that 65 per cent of their forty-four patients were men, while Schlichter, Amromin and Solway[12] report eleven of fourteen cases as being of the same sex. The age incidence varied greatly, between twenty-six and seventy, with an average of about fifty-three years.

Pain is the most conspicuous feature of the onset of the condition—sharp, shifting, severe. It is usually correlated with the extent and location of the dissection. Collapse and sudden death often with rupture frequently ensues. Occasionally there is no pain. Dyspnea is usually prominent. Agitation, convulsions and other neurological signs may suggest that the central nervous system is involved.[3,9]

Physical findings are extremely varied. Fever and tachycardia usually develop if the patient survives the initial attack. Hypertension may be present but is not nearly as common as frequently asserted, especially in the younger age group. Baer and Goldburgh[2] report that only 58 per cent of their series had a high blood pressure. Schlichter[12] reports that only one in fourteen had a definite history of long-standing hypertension. Four of these fourteen had an elevation of the systolic and diastolic blood pressure only after the onset of dissection; the systolic blood pressure only was elevated in two additional cases and the diastolic blood pressure only in two others. Differences in the pressure in the arms, as in the case presently reported, may be present and very helpful in diagnosis.

Cardiac failure or myocardial infarction are often suggested not only by the history but by the physical and laboratory findings. Cardiac enlargements with decompensation, murmurs, gallop rhythm, faint heart tones, tachycardia, and friction rubs are very frequently present and as frequently confusing.[14] Dilatation and/or deformity of the aortic ring may give the diastolic murmur of aortic regurgitation, and in a patient who had not shown this before, give a very helpful hint to the true condition.[8]

In the patient who survives the initial episode, many confusing symptoms, signs and findings may be presented. Frequent erroneous diagnoses are hypertensive heart disease, coronary sclerosis and cardiac failure.[6] Involvement of the spinal cord may give paralysis.[13] The increasing mental confusion, weakness and even physical findings may point to a cerebrovascular accident.[15] Thoracentesis is frequently done for suspected cardiac, tuberculous or even pneumonic pleural effusion. Gastrointestinal symptoms with nausea, vomiting, abdominal pain and rigidity often suggest an acute surgical abdomen. The point of dissection may simulate a renal syndrome with back-pain and hematuria.[5]

Laboratory findings are of little assistance. The white blood counts vary greatly up to 30,000. Albuminuria, hematuria and casts are common. Roentgenograms of the thorax are a great help in showing the increased aortic shadow but are too often not diagnostic. Fluoroscopy, if possible, is of the greatest assistance in showing the large pulsating aneurysm. The chief value of the electrocardiogram would seem to be in the differentiation from an acute myocardial infarction. This is, however, a false assumption, as the anoxia resulting from the episode results in changes in the tracing, which, as in our case, cannot be differentiated from a true infarction. This may be so even when the coronary vessels are not at all ininvolved. In the series reported by Schlichter,[12] of eight cases in which tracings were taken, one was normal, four showed left heart strain, one showed nonspecific changes, and two showed changes of possible recent infarction. Weiss,[16] Wainwright,[14] and Baer and Goldburgh[2] have reported cases in which dissection extended into the coronary arteries with occlusion and resultant infarction. In other words, the electrocardiogram shows the usual results of interference with the blood supply of the affected area and does not necessarily mean a true thrombosis.

The prognosis in dissecting aneurysm is poor.

While it has been stated[13] that 10 per cent of them will heal, and a case has been reported with a survival of four years,[12] the literature gives a very gloomy picture as to life expectancy in cases with really severe episodes of dissection. Varying surgical procedures[11] have and are being tried with conflicting claims, but as yet no definite conclusions have been reached.

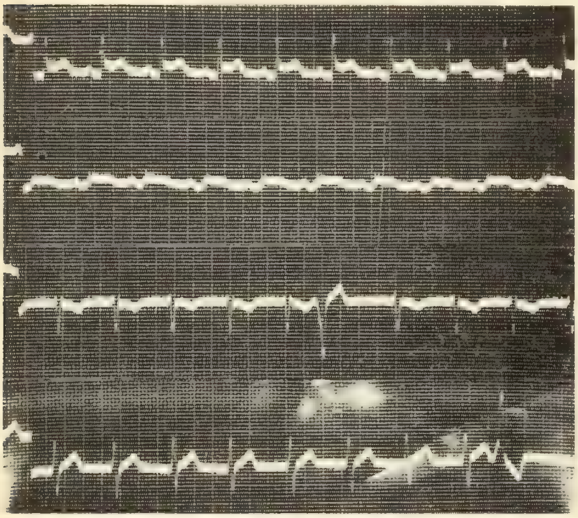

Fig. 1. Elevated ST_1, ST_2, left preponderance, ventricular extra systoles suggestive of an anterior thrombosis.

Healing of this lesion depends, of course, on the extent of the collateral circulation and the extent of dissection. The very separation of the aortic wall from its blood supply is conducive to the extension of the aneurysm.[17]

Since the articles by Gsell[7] and Erdheim,[4] anoxia of the media of the aorta has been implicated as the cause of dissecting aneurysm. The local ischemia may be due, as pointed out by Schlichter,[12] to occlusive disease of the vaso vasorum, alterations of the hemodynamics of the vaso vasorum, severe anemia, congenital abnormalities of the vaso vasorum, or any combination of these factors. The predilection of dissecting aneurysm, and especially those that rupture, for the ascending aorta may be due to the fact that that part of the aorta is much more mobile and gets the greatest strain of the blood stream as it is pumped from the left ventricle. Beyond this, the ascending aorta is not supported and surrounded by connective tissue and other organs which protect and absorb some of the impact. The aorta beyond the ascending also has frequent ostia which may provide more nourishment to the aortic wall directly. Primarily the destruction of the aortic media is the outstanding feature though other factors may play a part. Hypertension[4] may be very important in some cases by causing intimal changes in the small arteries, including the vaso vasorum, with resultant ischemia to portions of the aorta and medionecrosis. Vasoconstriction of nutrient vessels of the aortic wall may be a factor. Once the process is established, even in people with normal blood pressure, transient high blood pressure caused by emotional or physical strain may be enough to cause the dissection, increase the spread, or even rupture the wall.

Case Report

C. P., a white man, aged fifty-three, was first admitted to St. Andrews Hospital on February 22, 1947, with complaints of epigastric pain radiating to the right shoulder. The pain had started on February 20 and increased in severity, in spite of pills given by a doctor, until it had become of great intensity. He was nauseated but did not vomit, and his abdomen had become very hard, and the pain then involved his whole right chest and abdomen. He recalled similar, mild episodes for several years.

On admission, the man was in evident great distress. Pulse was regular at 100. The blood pressure was 130/80 in the left arm but was not obtainable in the right arm—a significant finding, as noted by Dr. Harry Johnson on admission, which gave the first real clue as to the true diagnosis. Heart tones were faint but no murmurs were heard. The abdomen was rigid on the right, but there was tenderness in both lower quadrants of the abdomen, to the extent that on admission a diagnosis of a possible acute surgical abdomen was entertained by the surgeon. There were diminished breath sounds in the left base of the lung. Temperature was 101°; urine showed 1-plus albumin. The hemoglobin was 15.1 gm., and the white blood count was 18,800. Electrocardiogram showed elevated ST_1 and ST_2 (Fig. 1), ventricular extrasystoles and left axis deviation, a typical tracing of anterior infarction.[10] Because of the picture of probable infarction, the patient was started on usual dicoumarol therapy with adequate control of prothrombin times. His condition remained critical with a temperature spiking to 103° until March 20, 1947, when it returned and remained at normal. During this period several urine examinations showed a specific gravity of 1.010 to 1.012 with occasional granular casts and 1 to 2-plus albumin. White cell counts ranged from 8,500 to 21,100. Icterus index ranged from 8.4 to 9.9. Serum bilirubin on February 26, 1947, was direct 10 minutes, 0.7 mg. per cent; direct 30 minutes, 2.05 mg. per cent; and indirect, 1.65 mg. per cent. On March 4, 1947, the serum bilirubin was direct 10 minutes, 0.1 mg. per cent; direct 30 minutes, 1 mg. per cent; and indirect, 1.65 mg. per cent. Stools were normal; blood urea nitrogen ranged to 49 mg. per cent and creatinin to 5.4 mg. per cent. Blood calcium and chlorides were normal. On March 6, 1947, a loud systolic murmur could be heard at the apex. The blood pressure, which had fluctuated, was then 172/78 on the right and 162/108 on the left. Repeated x-ray examinations by Dr. Walter Ude were done, as the clinical picture was quite confusing. The heart showed rather marked enlargement, and the aortic arch was prominent with diffuse dilatation of the aorta (Fig. 2). There was also, on several occasions, an abnormal density at the left base, suggestive of a mild pleural effusion.

The patient gradually improved and was discharged from the hospital fifty-six days after admission. The diagnoses entertained at the start were coronary thrombosis, uremia, cardiac failure, and dissecting aneurysm. The picture gradually cleared so that on March 6, 1947, a definite diagnosis was made of a dissecting aneurysm of the aorta based on laboratory, clinical and x-ray findings.

On October 20, 1949, the patient was readmitted. In the interval his condition had been such that he had resumed with no difficulty his former occupation as guard at the Walker Art Center. On October 18, 1949, he developed pain in the right shoulder strap area which spread to the right lower thorax. He had increasing dyspnea and became nauseated and later vomited. On admission he was pale, apprehensive, but apparently not in shock. Pulse was 150, faint and regular. The right chest showed less movement than the left, dullness, decreased breath sounds—the findings of a pleural effusion. The electrocardiogram showed sinus rhythm, left preponderance, deep Q_3, negative T_3. Blood pressure was 100/60. The liver was down 4 cm. in the right midclavicular line. Crepitant râles were heard in the right chest. Temperature was 103°. White blood count was 27,450, hemoglobin 8.8 gm., red blood cells 3,100,000. Urine showed 2-plus albumin. X-ray now showed a marked pleural effusion on the right. An attempt to aspirate resulted in a small amount of blood. The condition of the patient became progressively and rapidly worse. He complained of pain in the back, vomited, lapsed into a coma and died October 22, 1949.

Autopsy Report (by Dr. Koucky)

Body is that of a white male weighing about 190 pounds. The body shows no jaundice. There is no edema. There are no particular special marks. The peritoneal cavity shows no excess fluid, no blood, and there are no adhesions. The left pleural cavity shows no excess fluid or adhesions. The right pleural cavity is flooded with about 3,000 to 4,000 c.c. of blood, which is principally clotted. The blood has entered the pleural cavity from the junction of the diaphragm and vertebral bodies in the lowermost part of the posterior pleural cavity. The pericardial sac is somewhat discolored by blood infiltrating into it from the diaphragmatic surface. The diaphragm also is infiltrated with blood, and the infiltration extends across the dome and is visible in the attachments of the diaphragm along the anterior costal margin.

The heart weighs about 450 gm. There is very definite hypertrophy of the left ventricle. The muscle shows no evidence of fibrosis or atrophy or softening at any point. The valves show no recent or old endocarditis. The coronaries throughout are large. The walls show a minimal degree of thickening with no atheromata, and there is no evidence of any old or recent occlusion.

Left lung weighs about 350 gm. There is some atelectasis in the base. There is no edema. The right lung is completely atelectatic and is compressed by the clot in the right pleural cavity. The spleen weighs about 150 gm. It shows no infarction and no other gross change. The liver is somewhat rotated around to the right by a mass in the upper posterior retroperitoneal space. It weighs about 1500 gm. and shows no chronic passive congestion or cirrhosis. The gall bladder contains no stones.

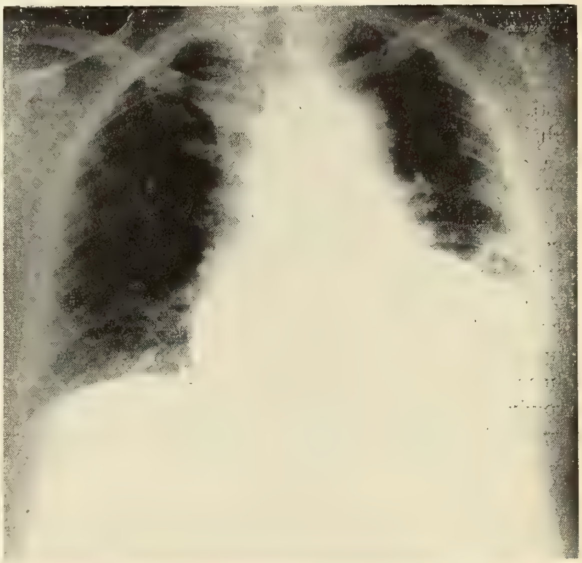

Fig. 2. Generalized enlargement of the aorta. Note duplication of descending aortic wall.

The gastrointestinal tract shows no tumors or ulcers or diverticula or other gross change. The adrenals show no gross change. The pancreas is grossly negative.

The kidneys each weigh about 110 gm. There is extensive atrophy, and the surface of the kidney shows a fine pitting typical of hypertension. There are occasional tiny cysts in each kidney. The ureters are not dilated. The bladder shows no cystitis or trabeculation. The prostate shows occasional small adenomas in each lateral lobe.

The aorta shows a duplication of the lumen beginning immediately below the arch of the aorta. On the convex side of the termination of the arch there is a slit-like orifice which is about 1 by ¾ cm. This opens into the outer chamber of the aorta. There is a prolongation upward along the arch of the aorta as far as the first part of the aorta. This upward prolongation is almost completely closed off by a thrombus. The thrombus is brown and hard and adherent and apparently has been present for a long period of time. The downward dissection of the aorta almost completely encircles the aorta. There is an irregular septum of tissue which generally follows along the anterior part of the aorta which holds the inner and the outer aortic cylinders together. The inner one of the cylinders is quite straight and has a diameter somewhat smaller than the average aorta. The outer cylinder is extremely irregular in outline. There are many irregular vasculations. The lining of the outer cylinder has the smooth and yellowish appearance similar to that of a normal aorta which is involved by arteriosclerosis. The wall of this outer cylinder shows patches of atherosclerosis and areas of calcification. At the level of the diaphragm, the outer cylinder abruptly forms a sacculated mass which measures 7½ by 10 inches. The mass is almost entirely a dilation of the outer cylinder which has become filled with hard adherent thrombus. Following the under surface of the most superior part of this aneurysmal sac there is an irregular channel which passes laterally and to the right and perforates through the wall of the aneurysm. This perforation enters the right crura of the diaphragm and has perforated through the superior surface of the diaphragm into the right pleural cavity. The aneurysmal sac ends about 1 or 1½ inches above the vifurcation of the aorta. This terminal inch is filled with a brown adherent thrombus, and there is more of the thrombus extending along the right ileac artery. There is a small channel on the side of this thrombus in the terminal part of the aorta.

Conclusions

1. Arteriosclerosis
2. Arteriosclerotic dissecting aneurysm of the aorta (old)
3. Recent rupture of arteriosclerotic aneurysm
4. Hematothorax
5. Hypertension
6. Cardiac hypertrophy

The case reported is remarkable in that the patient survived two and a half years after a major, definite episode of dissection. He was able to return to his usual work. It also demonstrates the difficulty in making a diagnosis. The very definite electrocardiogram changes were not of organic origin but rather apparently due to ischemia, as the vessels at autopsy were patent and showed no marked changes. It should be noted that the tracing taken on his last admission showed no marked abnormal changes. While the findings of the electrocardiogram and the whole clinical picture were confusing, in keeping with reports in the literature, the correct diagnosis was made two and a half years before death with the help of x-ray and the fact that the facts did not quite fit the picture of an acute coronary thrombosis in its entirety, especially as to symptomatology and clinical course. It is well to keep this in mind in all cases of atypical cardiac episodes.

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HEALTH PROTECTION IN THE HOME

The family is engaged in a variety of activities associated with homemaking, housekeeping, and child care with which we are so familiar that we often fail to realize their significance. If there is to be any effective health care and preventive medicine, as distinguished from treatment of the sick, it cannot be provided by doctors, nurses, or other professionals—however much their knowledge and skills may be needed by the family. Health care and preventive medicine are carried out in the daily activities of housekeeping and homemaking. Through marketing, cooking and the serving of meals, basic nutritional needs must be met, and through housecleaning, laundering, dishwashing, and similar sanitation, the necessary defense against infections and contamination must be maintained. Through provision of rest, care of minor ills, and all the cherishing functions within the home, individual members are protected and restored, so that they can live in health and carry on their daily activities.—Lawrence K. Frank, *The Survey,* December, 1949.

SPONTANEOUS REMISSION IN SUBACUTE LEUKEMIA

Report of Case

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THE ACUTE and subacute leukemias are uniformly fatal diseases, the total duration of which may be as short as three weeks. Occasionally, however, patients with the subacute form of the disease may survive as long as eighteen months. No entirely credible report of cure, spontaneous or otherwise, has appeared, but a number of reports of spontaneous remission in the diseases are available. Judging from these accounts, remission may be characterized by symptomatic and hematologic improvement, sometimes to a very remarkable degree. Published descriptions of truly complete remissions, in the sense that the patient becomes asymptomatic, the abnormal physical findings disappear, and the peripheral blood and bone marrow show no evidence of leukemia, are rare. The literature contains only seven cases in which the occurrence of remission was established not only clinically but also by adequate studies of the peripheral blood and bone marrow (Table I). In addition, there have been nine cases with allegedly complete remissions in which no bone marrow studies were done during the period of improvement.[3,4,5,7,12,13,14,19,20] Incomplete remissions in acute leukemia have been frequently reported.[7,10,16,17,21] The incidence and character of such remissions are of utmost importance in view of the fact that chemical agents, thought to produce remissions that are longer than the spontaneous variety, have recently been described.[6,8,9]

The following case of subacute leukemia is presented, not only as an illustration of complete spontaneous remission but also to illustrate the difficulty of assessing the value of therapeutic agents in this type of hematologic disorder.

TABLE I. CASES OF ACUTE LEUKEMIA WITH REMISSION PROVED BY EXAMINATION OF BONE MARROW.

Author	Age	Sex	Type	Duration	Hematologic Remission		Bone Marrow During Remission	Remarks
					Complete	Incomplete		
Birge, Jenks & Davis (2)	33	F	Stem	21 months	+		Normal	
Pellegrini (18)	14	F	Monocytic	5 months		+	Normal	Monocytes in peripheral blood never below 17 per cent.
	52	F	Lymphatic	3 months		+	Nearly normal end of remission.	Per cent of polymorphonuclears never over 57 and hemoglobin never over 75.
	39	F	Monocytic	1 year		+	Normal	Per cent of polymorphonuclears never over 50 and monocytes never below 22.
Moeschlin (17)	23	M	Myelogenous	1st remission 7 months	+		Normal	
				2nd remission 3 months	+		Normal	
				3rd remission 2 months		+	Showed abnormal numbers of myeloblasts	Leukopenia persisted; white blood count never over 4400
	38	M	Myelogenous	6 weeks		+	Normal	Hemoglobin never over 82 per cent and white blood count never over 3000.
Henning (11)	47	M	Myelogenous	3 months	+		Normal	

Report of Case

A twenty-year-old white man was admitted to the hospital on May 17, 1948, complaining of progressive weight loss of six months' duration.

He was perfectly well until January, 1948, when chills and night sweats began. In March, he developed weakness which soon forced him to give up his job as a manual laborer. In April he was told by his physician that he had anemia, and iron therapy was instituted but was without effect. A tooth extraction at this time caused a moderately severe hemorrhage from the tooth socket. In early May, he noted the appearance of numerous, slightly tender masses in the neck, armpits, and groins. Shortly afterwards, his physician found "changes in the white cells" and hospitalization was recommended. A few days before he came to the hospital, members of his family noticed that he was slightly

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Sponsored by the VA and published with the approval of the Chief Medical Director. The statements and conclusions published by the authors are the result of their own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

jaundiced. At the time of admission, he had lost about 35 pounds since the beginning of his illness although his appetite had been excellent.

The past and family histories were irrelevant.

TABLE II. SUMMARY OF HEMATOLOGIC DATA FROM ADMISSION TO THE END OF THE FIRST REMISSION.

Date	Hb. mg.	RBC mill.	WBC Thou.	PMN %	L %	M %	E %	B %	Sed. Rate mm./hr.
5-15-48	10.3		52.0	7	92		1		
5-17-48	9.8		19.8	14	86				67
5-19-48		4.2	7.2	16	81		2	1	
5-21-48			7.8	24	74	2			
5-25-48			2.7	12	88				
			(Whole blood, 1500 cc.)						
6- 2-48	10.3		1.5	23	77				115
			(Whole blood, 500 cc.)						
6-14-48			3.4	38	57	2	1	2	75
6-21-48			4.7	48	51		1		62
6-29-48			5.3	53	43		3		44
7- 6-48	9.0		4.4	67	29		4		43
7-13-48	12.2		9.1	77	19		4		35
			(Whole blood, 1500 cc.)						
7-27-48			6.5	73	24		2	1	30
8-17-48	14.8		5.4	63	35		2		32
8-27-48			5.9	49	49		2		31
9- 1-48	14.0		4.5	50	46		4		37
9-13-48	13.0		6.9	61	37		2		35
9-29-48	14.5		12.2	64	35		1		50
10- 8-48			8.8	27	70	2	1		
10-12-48	10.5	3.6	5.0	25	75				
10-14-48	9.8		4.1	22	78				

On admission, the temperature was 100.4 degrees, the pulse rate 98, and the blood pressure 118/72 mm. Hg. He was an acutely ill, well-developed young man whose skin and conjunctivae were slightly icteric and who was complaining of pain in the flanks. Other significant finings were malodorous breath, a tender spleen which extended 12 cm. below the left costal margin, tenderness in the right costovertebral angle and in both flanks, small petechial hemorrhages over both ankles, and pronounced generalized lymphadenopathy. The nodes were discrete, firm, and slightly tender, measuring up to 2 cm. in diameter. Tenseness of the anterior abdominal musculature prevented adequate evaluation of the size of the liver.

The hematologic findings on admission are summarized in Table II. In the peripheral blood some of the lymphocytes were young forms but no true blast cells were seen. Bone marrow aspiration showed decreased formation of neutrophils, suppression of erythropoiesis, a pronounced increase in the number of lymphocytes, most of which were immature, and a large number of blast cells which were thought to be lymphoblasts. The bleeding time was one minute and the clotting time four and one-half minutes. The prothrombin cencentration was 58 per cent (control 14.5 seconds, patient 16.9 seconds). A bromsuphthalein test showed 22 per cent retention in forty-five minutes. The one-minute serum bilirubin value was 2.1, and the total 4.1 mg. per 100 c.c. The cephalin-cholestrol flocculation test gave 4 plus results in twenty-four and forty-eight hours. The alkaline phosphatase test showed 43 King-Armstrong units. The blood Kahn test was negative. The initial blood cultures were contaminated but six subsequent ones were negative. Agglutination studies for typhoid, paratyphoid A and B, brucellosis and tularemia were negative as were three heterophil antibody tests, carried out three weeks apart. Urinalysis showed a one plus test for albumin and a few red cells in the spun sediment. An x-ray film of the chest showed no abnormality but a film of the abdomen showed the spleen and liver to be grossly enlarged.

The diagnosis at this time was acute or subacute leukemia. The patient's status appeared to be grave. The temperature chart showed daily elevations to 103 and 104 degrees and he continued to complain of severe, generalized aching. The number of petechiae increased and there was bleeding of the gums. An effort was made to obtain aminopterin for therapeutic use, but before the drug could be obtained, the patient's symptoms began to improve. The leukocyte count began to fall and the fever to subside. Three weeks after admission (June 7) the temperature was normal, the lymphadenopathy and jaundice had disappeared, the spleen had become much smaller, and the patient felt perfectly well. Because of the dramatic improvement the possibility that the initial diagnosis was in error was considered, but a sternal aspiration still showed changes consistent with lymphatic leukemia, although the percentage of blast forms was lower than at the time of admission. Since the leukocyte count fell to leukopenic levels, penicillin therapy was begun but was discontinued after seventeen days because of continued general improvement and changes in the total and differential leukocyte counts toward normal. On June 29, the serum bilirubin, alkaline phosphatase, and bromsulphthalein values were normal but the cephalin-cholesterol flocculation test continued to show 4 plus values in twenty-four and forty-eight hours. On July 13, about two months after entry, the patient was apparently perfectly well. The temperature was normal, he had no complaints, and the physical findings were those of a healthy young man except for a barely palpable spleen. The hemogram was almost normal and the sedimentation rate had fallen to 35 mm. in one hour. The appearance of the bone marrow was normal except for a slight increase in the number of adult lymphocytes. On this date, a severe chill and an elevation in temperature to 103 degrees interrupted the remission but the fever and accompanying symptoms subsided within a few days. During the latter part of July and all of August and September, the patient was perfectly well and spent most of the time at home. On August 31, the bone marrow was completely normal in appearance. The lymphadenopathy, splenomegaly and hepatomegaly had disappeared.

In early October, malaise, weakness, and fever returned, as did the lymphadenopathy, icterus, and spleno- and hepatomegaly. The total leukocyte count was normal but there was a pronounced relative lymphocytosis. The bone marrow was dominated by immature lymphocytes of which 25 to 30 per cent were blast cells. The erythrocyte sedimentation rate was again markedly elevated. Liver function studies gave reults that were very similar to those obtained on admission. Late in October there was a partial remission but the abnormal findings did not disappear altogether. Treatment consisted of occasional blood transfusions and in November, because of an increase in the total leukocyte count to between 50,000 and 100,000, small doses of x-ray therapy were given to the spleen (100 RU total). The leukocyte count dropped rapidly and reached the very low level of 900 per cu. mm. about a month after the treatment was given. Shortly after termination of the treatment there was a marked exacerbation of symptoms and from this time on, the course was one of steady deterioration. Blood transfusions and treatment with antibiotics were continued, without significant effect. During the first half of December, the total leukocyte count varied between 750 and 3,000, of which from 84 to 98 per cent were lymphocytes. Occasional blast cells were seen in the peripheral blood. From this time to the end of February the total count ranged between 1,000 and 6,000 and there was marked improvement in the differential count, which at times reverted completely to normal. During the last month of the patient's course, the total count remained below 3,000 the percentage of lymphocytes steadily increased, and the hemoglobin declined. He finally succumbed on March 22, about fifteen months after the onset of his disease and seven months after admission to the hospital. At the time of death, the total leukocyte count was 2,000, of which 36 per cent were neutrophils and 64 per cent lymphocytes. The hemoglobin was 7.6 grams per 100 c.c. of blood.

Permission for autopsy was refused.

Comment

The case presented is remarkable because of complete spontaneous remission in a disease the course of which is ordinarily characterized by inexorable progression. The remission may fairly be said to have begun in mid-July and to have ended early in October, a period of about ten weeks. During much of this time the only abnormal finding was a moderately elevated erythrocyte sedimentation rate, although during the latter half of the period, the differential leukocyte count showed signs of reverting to a state similar to that found on admission. The bone marrow, five weeks after the remission began, was perfectly normal. The remarkable remission in symptoms and abnormal physical findings was not altered until the end of the period. Even late in the course of the disease there were symptom-free periods, lasting as long as a week, but the hematologic and bone marrow findings never again returned entirely to normal.

The average incidence, degree and duration of spontaneous remission in acute leukemia are not known with certainty. The cases available in the literature (Table I) provide no information with regard to incidence of spontaneous remissions, although one authority, quoted by Farber,[9] is said to have observed them in 10 per cent of 300 cases of acute leukemia in children. The average duration of the remissions in this group was about ten weeks. Had it proved possible to treat the patient, whose case report is presented, with one of the folic acid antagonists, such as aminopterin, or amino-an-fol, the presumption of a cause-and-effect relation between the drug and the remission would have been difficult to avoid.

The extreme difficulty of evaluating a therapeutic agent that does not produce outright cure in acute or subacute leukemia is made apparent by cases such as the one presented. Farber[9] reported recently that over 50 per cent of approximately sixty children with acute leukemia ". . . showed improvement clinically, hematologically of important degree attributable to the action of these compounds." The basis for this judgment and details of the cases are not given, the author contenting himself with the statement that the remissions he observed were due neither to acute infection nor to massive blood transfusion, a procedure which, according to Bessis,[1] is followed by a high incidence of remission. Dameshek,[6] reporting on the effect of treatment with aminopterin in thirty-four cases of acute and subacute leukemia, observed a remission rate of 26 per cent which was thought by him to be higher than the incidence of spontaneous remission. Meyer and co-workers[15] observed beneficial results in only four of forty-three leukemic patients who were treated with aminopterin. Fifteen of their patients showed grave toxic manifestations which could not be controlled either by varying the dose of the drug or by giving liver extract along with it.

The therapeutic value of aminopterin and related compounds, therefore, remains very uncertain. At the present time, it seems wisest to utilize transfusion of whole blood, antibiotics, and symptomatic measures when indicated. Spontaneous remission may provide the patient with welcome relief from symptoms as it did in the case presented, but the attempt to obtain the same result by the use of folic acid antagonists seems premature.

The jaundice and other evidence of hepatic dysfunction are of some interest since they are said to occur rather seldom in patients with leukemia. The possibility that the hematologic disorder was complicated by hepatitis, either homologous serum or epidemic, cannot be ruled out since no autopsy was done.

Summary

A case of subacute lymphatic leukemia with complete spontaneous remission lasting about ten weeks is presented. During the remission the patient's symptoms and abnormal physical findings disappeared. The peripheral blood and bone marrow became normal in all respects. The spontaneous improvement was comparable to remissions that have recently been attributed to the use of folic acid antagonists, the clinical status of which is briefly discussed.

Addendum

Five additional cases of remission in acute leukemia, substantiated by bone marrow biopsy, are cited in the following work, which was not available until after the preceding report was prepared: Leitner, S. J.: Bone Marrow Biopsy. New York: Grune and Stratton, 1949.

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MINNESOTA'S SHARE OF PROPOSED FEDERAL BUDGET $789,365,400

If Congress should adopt in full the 42.4-billion dollar budget proposed by President Truman for the fiscal year ending June 30, 1951, Minnesota taxpayers will be required to pay out approximately $789,365,400 in Federal taxes as their share of the cost of this spending program.

The Minnesota Taxpayers Association has pointed out that the $789,365,400 share which would be borne by Minnesota taxpayers to support the President's proposed budget, which does not include social security program, is over five times the $153,617,000 in taxes collected by Minnesota last year to finance the entire State Government.

According to the Association: "These social welfare programs already exact millions of dollars annually from Minnesota wage and salary earners in the form of taxes deducted from their pay checks. If Congress should approve the new proposals, these taxes will rise sharply when the new programs get in full operation."

The Association continued: "A substantially smaller budget of $36-billion was proposed just four weeks ago by Senator Harry F. Byrd of Virginia. Under Senator Byrd's program the Federal budget could be balanced in 1951 with some funds left over to cut the staggering public debt. The difference between the two proposed budgets is 6.4 billions. The saving to Minnesota would be $119,040,000. This would go a long way towards payment of the entire cost of our State Government. It is more than enough, in fact, to pay for the entire Veterans' bonus.

"The Federal budget can be balanced in 1951. It can be balanced without increasing Federal taxes. It should be balanced by reducing non-essential expenditures just as we have had to do it on the farm, in business and in industry, and as every housewife in Minnesota has had to do in these days of high taxes and high prices. Deficit-financing should be stopped."—From *Minnesota Taxpayers Association.*

HEALTH IS A COMMUNITY PROBLEM

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FACTORS which contribute to health are varied and numerous. The doctor, the nurse, the hospital, the public health official and allied personnel all make their contributions to the cause of individual and community health, and co-operation is essential. Health and illness are problems too complex to be solved by any one of these human elements or organizations.

It is obvious that proper physical and mental health cannot be expected unless there are good housing, proper clothing, satisfactory food and happy family life. The doctor may be unaware of a deficiency in any of the above mentioned essentials for proper physical and mental health, while the nurse in the hospital, through her contacts with visiting parents and relatives, may obtain hints as to the need for further investigation.

This information passed on to the doctor and/or public health nurse may be invaluable in continuing the patient's care at home. In this way the public health nurse can plan her course of action more intelligently when she comes into the home. The doctor, too, can thus outline a more successful course of therapy in the home. If some of the essentials toward proper physical and mental health are missing, perhaps the public health nurse may be able to arrange for their restoration. So often, the doctor will leave proper instructions, assuming that they will be carried out. But without some sort of a check, he has no way of knowing whether or not his orders are fulfilled in their entirety—either because of ignorance or because of lack of the essentials conducive to proper health and recovery.

No field of specialized medicine has a broader scope, greater responsibilities or greater possibilities than has pediatrics.

To some the practice of pediatrics is essentially infant feeding; to others it is the management of the ills of the first two or three years of life; to still others it is preventive medicine; and to a few it is simply the management of behavior disorders. It is all these and more. Concern for the child must antedate conception and extend through the period of adolescence. Care of the unborn child is provided by adequate care of the pregnant woman, and obstetric care at the time of delivery is reflected in the care of the infant. The neonatal period, or the first four weeks of life, is the single most important period of life and presents problems that never exist again. Infancy, or the first two years of life, represents the period of most rapid growth. This is the time when the infant is completely dependent on others for all phases of his care—when he is not only more susceptible to infections and nutritional disturbance but often has a pattern of response which differs from that of later years. As the age of infancy is passed and the preschool, prepuberty and adolescent ages are attained, the child assumes increasing responsibility in his own care, but intelligent and understanding pediatric supervision continues to be an important aid. I mention the above to call attention to the fact that in pediatrics we are always dealing with a growing individual—his physical and mental constitution is constantly going through changes. One must be aware of these metamorphoses in order to deal with any deviations from the normal.

Surveys of children in all economic strata reveal a high incidence of physical and nutritional disturbances and psychological difficulties which are remediable. Obviously in this small space I could not possibly attempt to cover all of these physical disturbances and psychological difficulties. I will try to briefly touch upon two phases which are so often neglected: convalescent care and psychological care of the sick child.

Convalescent Care

Convalescent care as a phase of medical responsibility in the management of the sick child has received only scant attention. There is a great need for a better understanding of both the qualitative and quantitative aspects of such phases of treatment as diet, rest, and activity, and for more adequate measures to determine when convalescence is complete.

In a broad sense, any child who is below par physically is in need of convalescent care. In the more practical sense, the term "convalescent care" should be reserved for the management of the more serious deviations from the states of health which exist as the result of acute or chronic in-

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Read at the Public Health and Hospital Nurses Conference, Virginia, Minnesota, September 23, 1949.

fections or non-infectious illness but which are not permanent and for which at least some degree of improvement can be expected. The extent to which convalescent care is needed is determined by the pre-existing state of health and by the seriousness and duration of the active state of the illness.

Convalescence from short term acute illnesses in previously healthy children should be completed in a very short time. In such instances gradual increase in activity and special attention to diet are all that is needed. When the illness has been prolonged or unusually severe, greater attention is necessary.

The principal factors are:

1. Rest.
2. Increasing but graded physical activity.
3. Diets which take into account increased need for such essential items as protein, vitamins and minerals.
4. Play and occupational therapy.
5. Provision for formal schooling.
6. An environment which stimulates self-confidence in the child and at the same time provides an adequate sense of security.

The public health nurse, through the co-operation of the hospital nurse, can do a great deal in educating the parent in the above factors.

Children with nutritional deficiencies require special attention. If undernutrition is due to economic factors, every effort should be made to see that ample food supplies are made available. When undernutrition has been due to poor eating habits, which so often are the result of poor training and disturbed parent-child relationships, reconstructive work must be carried out with the parents while the child is still convalescing in the hospital. Supervision and guidance should be maintained after the child is dismissed to his own home, through the co-operation of the public health nurse or social worker.

When the convalescent period is spent in an institution rather than in the child's own home, the parents should be acquainted with the purpose and the methods employed. This should be supplemented by home visits from public health nurses and medical social workers. The nurse visiting in the home can be of great assistance in interpreting instructions for the parents and child and in appraising the home situation for the doctor.

The responsibility for supervision of long convalescent periods within the child's own home will fall upon the physician. If he assumes this responsibility, he must recognize that it is the whole child and not the physical ravages of the disease alone which must be provided for. He will do well to enlist the aid of persons who can provide play and occupational therapy and schooling within limits which stimulate but do not overtax the child. In some instances, the mother may be adequate for this task; in others, dependence will have to be placed upon such persons as visiting teachers and public health nurses. Communities which do not have convalescent institutions could with advantage organize such home care service for convalescent patients.

Psychological Care of the Sick Child in the Hospital

Tens of thousands of children are admitted every year to pediatric hospitals throughout the country. They come at different ages, with different ailments of varying degrees of severity and discomfort. Some never leave the hospital alive; the great majority return to their homes after a short period of residence; others must spend many months or even years in wards of private hospital rooms. They come from the homes of luxury, moderate conveniences, or poverty; from atmospheres of sheltered security, or family disruption; from reasonable parental management, pampering over-solicitude, or inadequate distribution of affection. For many children hospitalization is an unwelcome removal from a happy home, school or play life; for some it is a much enjoyed first opportunity to find kindness, comfort, and an interesting escape from domestic monotony or disagreeable school situations. Unless there is at the time of admission a clouding of consciousness or the suffering is too acute or intense, every child beyond the age of infancy must have the realization that an event of the first magnitude is taking place in his experience. He often brings with him peculiar notions about the meaning and functions of physicians, nurses and hospitals. He may come with confidence or dread, with placid submission or violent protest.

Hospital admissions are often carried out with a gracefulness and charm which cause the child to accept the inevitable as a special privilege. Yet there are situations in which an impatient nurse contributes a great deal toward a few days or weeks of mutual irritation and veritable warfare. A youngster may be snatched away with force and carried to a bed where he is left unheeded, or bewail screamingly what to him seems a major injustice. Or his mother is allowed to lie to him that he will be returned to her and taken back home in a few minutes: he waits and waits until the truth fills him with bitterness and justified resentment. Thus an unpleasant first impression may well play havoc with the patient's adjustments and co-operation.

In spite of the absence from home, in spite of the imposed restrictions of activity, in spite of drugs, injections and enemas, many children look back with pleasant remembrances to the days of their hospitalization.

So many a physician has said to himself that he could help many of his parentally mismanaged patients if only he could get them away from home. Justified fear of losing his patients deters him from making any such recommendations. Illness, necessitating admission to a hospital, comes as an answer to his prayers. The spoiled, overprotected child is away from his agitated mother, and there is a chance to re-educate the child who has temper tantrums, indulgence in food capriciousness with or without vomiting, who is the object of parental bowel overconcern that works with laxatives, suppositories and enemas, has innumerable aches and pains, is afraid of the dark, and gets everything he wants. Successful management of these problems in the hospital can be made to serve as a forceful demonstration to the parents of adequate methods of training. But there must be people on the staff who have learned how to deal with such children and their parents, and of course the public health nurse can see that the hospital management of the problem is continued in the home—or a return to the original difficulty will be the result.

When a child comes to a hospital, he is not just the incidental carrier of a disease that is to be cured. He is not simply a case of pneumonia, rheumatic fever, asthma, or sore throat. He is an impressionable human being, and a member of a family who are very much interested not only in his blood sugar and leukocyte count but very profoundly and essentially in the human being that he is. Professional help receive excellent instruction in the treatment of diseases and care of bodies, in good hospitals. If some time and thought could be given to teaching nurses how to deal with the children themselves, our hospitals, in addition to their great contributions to the physical welfare of children, would render considerable service to the preservation and promotion of the mental health of the patients entrusted to their care.

MORTALITY RATES

The death rate for the United States in 1948 was the lowest in the history of the country, John L. Thurston, Acting Federal Security Administrator, has announced. The announcement was based on a compilation just completed by the Public Health Service's National Office of Vital Statistics.

The crude death rate for 1948 was 9.9 per 1,000 population—2 per cent below the rate of 10.1 for 1947 and 1 per cent lower than the 1946 rate, the previous record low, the report showed.

The leading causes of death remained the same as in 1947. The major chronic diseases associated with advanced age accounted for 63 of every 100 deaths. Death rates in this group showed only slight changes from the 1947 record. The death rate for diseases of the heart was 322.7 per 100,000 population, while the 1947 rate was 321.2. The death rate for cancer and other malignant tumors increased from 132.4 in 1947 to 134.9 in 1948. The death rate for diabetes remained about the same for the two years; the 1947 rate was 26.2, and the 1948 rate 26.4. Deaths from nephritis, and from intracranial lesions of vascular origin each showed small declines. The 1948 death rate for intracranial lesions was 89.7, while the 1947 rate was 91.4. The nephritis death rate dropped from 56.0 in 1947 to 53.0 in 1948.

Mortality from the major infectious diseases continued their long-time declines. The death rate for pneumonia and influenza, combined, and the rate for tuberculosis both reached new lows. A 10 per cent decline from the 1947 rate brought the death rate for tuberculosis (all forms) for 1948 down to 30.0 per 100,000 population and the rate for pneumonia and influenza down to 38.7.

Motor-vehicle accident deaths decreased for the second successive year. The rate for 1948 for this cause was 22.1 per 100,000 population, while the 1947 rate was 22.8. The death rate for accidents other than motor-vehicle accidents also decreased from the 1947 rate of 46.6 to 45.0 in 1948.

Mortality from two of the communicable diseases of childhood increased sharply from 1947, a low year. The number of deaths from poliomyelitis and acute polioencephalitis increased from 580 deaths in 1947 to 1,895 deaths in 1948, bringing the death rate back up to the 1946 level of 1.3 deaths per 100,000 population. Deaths from measles rose from 472 in 1947 to 888 in 1948, which was still well under the figure of 1,310 recorded for 1946. Deaths from whooping cough fell from 1,954 in 1947 to 1,146 deaths in 1948, continuing a long-term decline. Diphtheria deaths also continued their decline, reversed temporarily in 1945; 634 deaths were reported from this cause in 1948.

CLINICAL-PATHOLOGICAL CONFERENCE

DIAGNOSTIC CASE STUDY

ARTHUR H. WELLS, M.D., GORDON C. MacRAE, M.D., and HAROLD H. JOFFE, M.D.
Duluth, Minnesota

Dr. A. H. Wells: Possibly the most common and most difficult diagnostic problems in hospital experiences are those cases with fever of unknown origin. We wish to present an interesting and unusual diagnostic problem of this general nature. Dr. J. D. Fickel will present the history, and Dr. F. W. Conley will give his differential diagnosis; neither knows the postmortem findings.

Clinical Study

Dr. J. D. Fickel: This sixty-five-year-old white male (Case 4439) was admitted to this hospital complaining of weakness and loss of appetite and weight for about one month. The patient dated his present illness to mid-February, when upon arising one morning he fell to the floor on his knees. Following this fall he noticed his knees became painful and slightly swollen. Since that time he had noted generalized weakness especially of both legs, severe loss of appetite and an inability to swallow. The latter was not exactly dysphagia; however, he said he could not choke food down. He had no chills and had noted no fever.

The past history revealed a series of accidents. In 1927 he was in an accident at a coal dock which resulted in fractures of the left elbow, right hip and ribs on the left side. From this he had residual shortening of the right leg and fixation of the left elbow. In 1937, twelve years before admission, he fractured his occiptal skull on a snow plow. Eight years ago a conveyor belt injury of the right hand resulted in amputation of the thumb and three fingers of the same hand. On that admission he gave a history of having a chronic cough which he attributed to coal dust. At that time he weighed 150 pounds. His cough cleared without establishing the etiology. Since then he has been well until the present illness. Social and family history were not contributory.

On admission the blood pressure was 150/60, the pulse 88, respiration 22 and the temperature 101° F. Physical examination revealed a somewhat emaciated white man of approximately 115 pounds in weight in no acute distress. He had an emaciated sallow face. There was a questionable icteric tinge to the sclera. The lungs were found to be clear. The heart tones were strong and free from murmurs. The abdomen was soft and not distended or tender. The liver edge was palpable about 3 cm. below the right costal margin. External hemorrhoids were noted. A grade I benign hypertrophy of the prostate was also palpated. The testes were slightly enlarged and soft and the left one was tender. There was no edema of the extremities. Both knees were a little fusiform in appearance. They were, however, not reddened or inflammed and there was no demonstrable excessive fluid present. They were not especially tender. The left elbow was severely limited in mobility due to an old injury. Absence of the thumb and the first three fingers of the right hand were noted from a previous accident. He had slightly enlarged inguinal, axillary, epitrochlear and cervical lmyphnodes. A consultant found moist râles at the bases of both lung fields; otherwise his examination was essentially as above. The laboratory findings on admission revealed a normal urine; white blood cell counts ranged from 5,000 to 11,000 with normal differential counts. The red blood cell count on admission was 3.4 million and the hemoglobin 7.5 gms. The red blood cell sedimentation rate was increased to 119 mm. per hour (Westergren). Subsequent sedimentation rates were in this range or higher. On the tenth hospital day, for example, the sedimentation rate was 130 mm. per hour. The serum albumin was 4.3 gm. and globulin 1.8 gm. per 100 c.c. Repeated blood cultures were found to be sterile.

Biopsies of an inguinal node was described as histologically normal. An axillary node showed follicular hyperplasia. Bone marrow aspirations from the sternum and from the iliac crest showed 5 per cent plasma cells, otherwise there was a normal distribution of marrow cellular elements. X-ray studies of the knee revealed minimal degenerative changes involving the knee joint on the right side. Chest and skull roentgen pictures were normal.

Because of cold agglutinins it was impossible to cross-match his blood for transfusions. His serum agglutinated his own red blood cells. During the seventy-seven days in the hospital he ran a low-grade fever, never exceeding 101° F. Several tests for Bence-Jones protein in the urine were negative except on one instance there was a question of a positive test. Until just before his death blood cultures were negative. Six days prior to death a culture was found to be positive for staphylococcus aureus. The Felix reaction was negative. The patient's course in the hospital was that of progressive loss of strength, progressive anemia, listlessness and depression. At one time about a month after admission he grew quite disturbed mentally, was violent, upset and hard to keep in bed. Shortly after this he apparently had a remission during which he

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From the Department of Pathology and Graduate Educational Service, St. Luke's Hospital, Duluth, Minnesota.

became very much improved, was up and about and appeared to be recovering. However, the anemia progressed down to 8 gm. of hemoglobin with 2.9 million red blood cells. He ran a terminal temperature of 107° F., and on the seventy-seventh hospital day he expired.

A definite clinical diagnosis was never established. Considered were multiple myeloma, acute rheumatic fever and rheumatoid arthritis. Two consultants were in on the case, and each of these diagnoses resulted from one of their visits. The terminal episode was that of bacteremia and final death.

Differential Diagnosis

Dr. F. W. Conley: This patient was a sixty-four-year-old man with anemia, weakness, weight loss and joint manifestations. The first three findings are nonspecific; and therefore, I would like to discuss primarily the joint involvement. Our patient's first symptoms included swelling and pain in both knees; however, he also had pain in both ankles, later in both wrists, also in the back and shoulder. The differential diagnosis of polyarthritis includes the following:

I. Rheumatic fever
II. Gonorrheal arthritis
III. Suppurative arthritis
IV. Gout
V. Palindromic
VI. Rheumatoid
VII. Brucellosis
VIII. Symptomatic diseases
  (a) septicemia
  (b) collagen diseases
  (c) carcinoma
  (d) multiple myeloma
  (e) chronic ulcerative colitis
  (f) blood dyscrasias
  (g) malnutrition
  (h) erythema nodosum
  (i) pulmonary disease

Briefly, I would like to review the above list of diseases as they pertain to this case. Rheumatic fever is an acute migratory polyarthritis, while about 10 per cent of the cases of rheumatoid arthritis begin acutely. I feel that in this case both can be excluded. Gout usually starts as a monarticular lesion and as time progresses may involve several joints. Gonorrheal arthritis begins as a polyarthritis and within one to three weeks becomes monarticular. However, in the case under discussion no symptoms of a genital lesion could be found and smears were negative. Brucellosis is usually an arthralgia rather than a true synovial reaction, and also the negative agglutination tests aid in excluding this. The systemic diseases which cause arthritis are the larger and more important group, and it is here we will concentrate our attention. Septicemia can be excluded because of the large number of negative blood cultures. The positive culture in the last week of life was possibly a terminal bacteremia. We can also exclude chronic ulcerative colitis. Blood dyscrasias are something to be considered seriously. An arthritis due to malignancy is most often associated with bronchogenic carcinoma and second in frequency with primary carcinoma in the pancreas. Other common sources are cancer of the gall bladder and kidney. Of course other malignancies can cause joint manifestations, and of these multiple myeloma stands out. He had a severe anemia and a very rapid red blood cell sedimentation rate of 120 mm. per hour. Bone marrow biopsy disclosed 5 per cent plasma cells, and the one finding of Bence-Jones proteinuria is to be noted. All these features strongly favor the diagnosis of mutiple myeloma, yet the negative x-rays of the bones and the very low plasma cell percentage made me hesitate to make this diagnosis.

There are many findings present in periarteritis nodosa and the other disseminated collagen diseases which are missing in this patient. The pains were not "neuritic" in type. There was no albuminuria, hematuria, hypertension, skin lesions, eosinophilia or serous reactions. There was a leukocytosis present in only two white blood cell counts. Leukemia and Hodgkin's disease should be considered. As far as I am acquainted, Hodgkin's disease usually does not cause any joint manifestations of the type we have in this patient. On the other hand, leukemias are one of the common causes of joint pains. The differential counts and bone marrow studies showed no immaturity or suggestion of leukemia.

In conclusion, hidden malignancy in this sixty-four-year-old man cannot be completely excluded. Multiple myeloma remains a possibility. If I am held to one diagnosis, I would choose a low-grade inflammatory disease such as a suppurative polyarthritis with a minimum of joint reaction and occasional episodes of bacteremia as evidenced by the abscesses in the scalp nodules biopsied and the late positive blood culture for staphylococcus aureus. It is possible that the patient's confinement to bed due to the systemic reaction kept him from traumatizing his joints and thus minimized the joint reactions. An aspiration of a knee joint might confirm the diagnosis.

Necropsy

Dr. A. H. Wells: Dr. Conley's diagnosis is correct. The postmortem examination revealed thick greenish gray purulent exudate containing hemolytic staphylococcus aureus in every joint entered, including both knees, shoulders, the right ankle, left elbow and the sternoclavicular joints. The only apparent primary site for the inflammation was the joint cavities themselves. The other organs simply reveal toxic changes. A postmortem blood culture contained a variety of organisms.

Discussion

Dr. A. H. Wells: Concerning the etiology of 140 cases of suppurative arthritis in which cultures were taken, Heberling[1] found the following distributions: staphylococcus aureus, fifty cases; hemolytic streptococcus, thirty-seven; negative joint culture, nineteen; gonococcus, fourteen; staphylococcus albus, ten; streptococcus viridans, eight, and pneumococcus, two cases. Among the less frequent organisms one should also list Brucellae, Eberthella typhosa, Escherichia coli, Bacterium dysenteriae, Leishmania donovani, lymphogranuloma venerium and certain fungi. In most reports well over half of the cases of suppurative arthritis are caused by the staphylococcus and hemolytic streptococcus.

The pathogenesis must frequently be theorized. Synovial tissue becomes infected by hematogenous dissemination from a remote focus in many instances. In others, there is undoubtedly a direct invasion of the joint from a suppurative process in the adjacent bone such as osteomyelitis or epiphysitis. Penetrating wounds may directly introduce the infection into the cavity.

The anatomic incidence of suppurative arthritis in 201 patients[1] was as follows: knee, seventy-two; hips, sixty-five; ankles, seventeen; wrists, ten; elbow, eight; shoulders, seven; small joints, four, and multiple joints, eighteen. The ages of these patients revealed one-fourth of them occurring in the first ten years of life and another fourth in the second ten years, whereas only one-eighth occurred after forty years of age.

The gross and microscopic pathologic changes in acute arthritis are similar to the acute inflammatory reactions found in other tissues except for the complicating features of digestion of articular cartilage resulting in ulceration and irrepairable destruction. This is directly proportional to the severity and duration of the infection. The more severe the cartilage damage the more likely ankylosis will result. Abscesses may form in the marrow of subchondral bone or in the soft tissues throughout the joint.

The usual swelling, pain, heat, tenderness and congestion about a joint leaves little question as to the inflammatory nature of the condition; however, the co-existing systemic disease of which the arthritis is a complication may be so severe as to completely overshadow the joint infection.

In contrast to our patient there is nearly always a neutrocytosis of 15,000 or more with a rapid red blood cell sedimentation rate. Occasionally a positive blood culture is found. The diagnosis generally can be established by a study of the definitely purulent synovial fluid with its many pus cells and bacteria. This demonstration by smear or culture clinches the diagnosis. However, if no bacteria are present, one must rule out acute gout with associated hyperuricema. Dr. Conley has given a differential diagnosis for our case study. The entire gamut in the classification of arthritic conditions may have to be reviewed as possibilities in certain cases[2,3] The articular picture may be masked by the systemic reaction to suppuration as it was in our patient.

Early diagnosis and treatment is stressed by all authorities since irreparable damage can result within two weeks of the onset. Chemotherapeutic and antibiotic therapy, specific for the organism involved given in proper dosage until aspirated joint fluid is sterile and clear, is the generally accepted procedure. Some authors feel that the drugs should also be used in the joint. Willems method[4] of incision and drainage of the suppurative joint followed by immediate active mobilization is highly recommended in the large series of Heberling.[1] This includes an incision of the inflammed joint under general anesthesia and suturing of the appropriate sized rubber drain to the capsule but not inside of the joint. Active motion to full range of motion is repeated every three hours thereafter, even though the joint is put in a plaster cast or in traction. Therapy started in the first week of the infection will have decidedly better results than that started during the second week. If therapy is begun after the third week some permanent injury to the joint generally results.[3]

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STREPTOMYCIN IN TREATMENT OF PROGRESSIVE PRIMARY TUBERCULOUS LESIONS

The results of streptomycin treatment in progressive primary tuberculosis may be summarized as follows:

1. It uniformly lessened and in most cases obliterated the toxic manifestations in twenty-five patients treated. The improvement usually became apparent within a few days after the treatment was begun.

2. It reversed the general downward clinical course of the disease.

3. The physical findings improved and were clearly demonstrable in thirty to sixty days after treatment was begun.

4. The decreased roentgenologic findings followed the improvement in the clinical picture.

5. Sputum conversion was completed in four to five months in 89 per cent of progressive primary lesions.

6. The hospital stay was uniformly reduced roughly from two to three weeks to six to eight months' time.

In spite of the fact, however, that streptomycin has shown great promise especially in progressive primary tuberculosis in children, it should not be considered a cure-all; its use is still in the experimental stage and larger numbers will have to be observed over a longer period of time before an exact and complete evaluation of its worth in this field can be given.—McEnery, Sweany, Turner, Chicago, *Illinois Medical Journal,* January, 1950.

History of Medicine In Minnesota

MEDICINE AND ITS PRACTITIONERS IN OLMSTED COUNTY PRIOR TO 1900

NORA H. GUTHREY

Rochester, Minnesota

(Continued from the February issue)

From the late nineties Dr. Allen's inventive and mechanical genius became manifest, especially in his Model Invalid Elevator, which he designed to spare the bedridden invalid the strain of assuming different positions for treatment and dressings and the effort of transfer from bed to chair or from room to room. The machine has been described by a physician of Rochester as light but strong and stable. The basic table-like structure ran on small wheels; from it rose a strong metal arm, curved at the top, from which was suspended a horizontal, adjustable sheet of thin metal adequate to support an adult person. The elevation and angle of this metal sheet were controlled by a crank. When the apparatus was wheeled to the bedside, the support could be slipped under the patient, who could then be lifted and transported. Arrangements were made for the manufacture and sale of the elevator, and for some years it was used in hospitals to a considerable extent. It was patented in the United States, Canada, Great Britain, Germany, France and Belgium; in 1899 Dr. Allen was awarded the gold medal of the Academy of Inventors of Paris and was made an honorary member of the society.

Reminiscences of townspeople and gleanings from histories and newspapers of Rochester have thrown light on Dr. Allen's domestic and social, professional and civic life over his many decades in Rochester. A tall, slender, bearded man, he was kindly, gentle and reliable, a good citizen, loyal to his ideals and faithful to his responsibilities. Energetic and industrious, he always asserted that four hours of sleep in twenty-four were enough for any man, especially one engaged in business or professional work. For many years he was a familiar sight, driving on his rounds in town and country in a top buggy drawn by a gentle horse, Kittie; in January, 1912, there appeared a little news item that brought the modest rig sympathetically to the minds of many Olmsted County citizens: the faithful Kittie had died at the age of thirty-two years. In later times Dr. Allen used an automobile, which he himself drove well into his ninety-ninth year. He was a member of the Universalist Church and of fraternal organizations, among them the Masons (he was a member of Lodge No. 21, A. F. and A. M., of Rochester, a Knight Templar, and holder of the Thirty-second Degree), the Independent Order of Odd Fellows and the Ancient Order of United Workmen. He was medical examiner for different organizations and at one time of candidates for the United States Military Academy at West Point.

Dr. and Mrs. Allen had a long life together; on their fiftieth wedding anniversary, and on the fifty-sixth, they were honored by their many friends. Their only child was Caison Monroe Allen, who for twenty-five years after

1900 was cashier of the First State Bank of Wykoff, Fillmore County. Caison M. Allen was married on September 12, 1882, to Betty Cole, of Chatfield. In later years Mrs. C. M. Allen was an able teacher of music in the public schools of many southern Minnesota towns. She died at Wykoff on February 15, 1940; Caison M. Allen died in the Episcopal Church Home at Saint Paul on June 22, 1942. Their son and only child was L. Dana Allen, long of Winona and later of New York City, whose death occurred in Winona in November, 1937; burial was at Rochester.

After the death of Mrs. W. A. Allen, the doctor's friends chose his birthday on which to pay him their respects. On his one hundredth birthday, March 6, 1934, Rochester's esteemed oldest citizen, then in a hospital because of declining strength, eagerly received more than 500 callers. Some weeks later, as he sat writing, he stooped to pick up a postage stamp, his chair slipped, and he fell, suffering trauma and shock. His death resulted within a few days.

Ole W. Anderson (1840-1920) was born on May 22, 1840, near Bergen, Norway, and died in Rochester, Minnesota, on December 26, 1920, an accredited member of the medical profession of Minnesota; MINNESOTA MEDICINE carried a notice of his death. After the passage of the medical practice act of 1883 he received an exemption certificate to practice in the state, on the basis of professional knowledge and years of experience. His was an interesting as well as useful life, and his contribution to medicine, although remembered now by few, was of value in its day.

When Ole W. Anderson was about eight years old he came with his parents to the United States. The family settled in the region of Viroqua, Wisconsin, where they were farmers. In the sixties, a student of the natural sciences and a chemist and pharmacist, Mr. Anderson came to southern Minnesota. For a year or more he alternated between Olmsted County and Mower County and for a time was a contributor to a Norwegian newspaper, founded by Mr. Ole Jorgens, of Grand Meadow.

On July 3, 1865, Ole W. Anderson was married to Gunhild (this name later was anglicized to Julia) Lindelien, of Mower County, near Grand Meadow. Gunhild Lindelien was born in Bergen, Norway, on February 20, 1845, and when a small child came with her parents to southern Minnesota. In Rochester Mr. and Mrs. Anderson established their home on South Franklin Street, where were born their four children, Lillian B., J. William, Albert Oliver and G. Adolph. Life in the household, friends of the family recall, was one of a certain grace and dignity tempered by humor. The mother possessed beauty, a lovely singing voice and musical talent. Dr. Anderson was a tall, fine-looking man, slender when young, heavy but not ponderous when old, who always wore a full beard. A devoted reader of the Bible and the works of Pope, Milton, Byron, Shakespeare and Ruskin, he could quote long passages from each. A member of Rochester's Scandinavian Literary Society, he was one, as was Dr. William Netter, in Rochester in the early eighties, to give "Declamations," and he is remembered as a delightful raconteur of an endless fund of stories.

In May, 1867, O. W. Anderson, druggist and chemist, in a shop next to Head's Stationery Store, Rochester, called the attention of the city and the surrounding country to his New Drug Store, which was stocked with drugs, medicines, chemicals, pharmaceutical preparations, patent medicines, perfumeries, toilet goods, surgical instruments and miscellany and with "pure wines and liquors for medicinal purposes." He was a prohibitionist, at one time active in the Prohibitionist Party, and was as much opposed to tobacco as to alcohol. In December, 1867, he entered partnership with Dr. William W. Mayo, in Rochester since 1863, who made the drugstore his headquarters and put up and dispensed his own prescriptions. Although this alliance ended in the summer of 1869, the mutual respect and esteem of the two men continued; much later Dr. William J. Mayo, then an elderly man, spoke of Dr. Anderson as a fine citizen.

By 1870, well established as a manufacturing chemist and apothecary, O. W. Anderson was offering a long list of remedies of his own compounding, "the Norwegian Family Medicines": a few of the titles were, Hysteric Drops, Elixir of Life, Blood and Liver Renovator, and Compound Syrup of Blackberry Root. In the early years of the business he used a jobbing wagon, enclosed and bearing the legend, "O. W. Anderson's Medicines," which made long trips of distribution. In 1885 he fitted up the second story of La Due's Block on Broadway for a new and enlarged laboratory to supply the growing demand for his preparations.

Dr. Anderson made no pretension to clinical practice such as was carried on by graduate physicians of Rochester. He was essentially a chemist and apothecary, the latter in the early English meaning of the word, who prescribed and dispensed specially compounded tinctures and ointments. A distinguished physician of Rochester who from his youth knew the Anderson family intimately and had knowledge of Dr. Anderson's remedies, has said, "His medicines were of the very best, gave absolute satisfaction, and if they were still manufactured, there would still be a call for them." A son, Dr. G. A. Anderson, in 1945 wrote in regard to this opinion, "I believe that the statement which you quote is true . . . My brother Will was greatly disturbed not to be able to supply the demand, which continued to come long after my father's passing, when the remedies were no longer prepared. Regarding my father's medical practice, it is my impression that it was largely incidental to the distribution of the Norwegian Family Medicines, which he originated and prepared. These remedies were designed to meet the home requirements of the very large Norwegian population of Minnesota, Iowa and the Dakotas, among whom they had become household necessities, and they were sold through the wholesale houses of St. Paul and Minneapolis in great quantities. These consumers often appealed for personal attention and this was, in my opinion, the clientele which he served."

Dr. Anderson survived his wife, who died on June 13, 1913. Of their children, Lillian B. Anderson (1866-1914) was the wife of Dr. John Abraham Freeborn, of Ortonville and later of Fergus Falls; Dr. and Mrs. Freeborn had three daughters, all of whom were living in 1945: Gertrude Lillian (Mrs. Paul E.) Francis, Frances Mary (Mrs. Howard J.) Vandersluis, and Constance Margaret (Mrs. Elmer A.) Haugen. J. William Anderson (1868-1940), a respected and substantial citizen of Rochester, first assisted his father in the laboratory, later ran a printing office, and for twenty-five years was clerk of the municipal court; he lived all his life in the home where he was born, and in 1950 his wife continues to make it her home. Mrs. J. W. Anderson before her marriage was Verona Boelter, a registered nurse, member of a Rochester family. Albert Oliver Anderson (1873-) studied music in Chicago, New York, Paris and Berlin and in 1923 received the Fellowship degree of the American Guild of Organists. G. Adolph Anderson (1877-) on graduation from the Chicago College of Dental Surgery in 1901 became assistant to Dr. E. A. Bogue of New York City, but soon after entered private practice, specializing in the regulation of children's teeth. A landscape artist of merit, he began lessons with Mrs. Mary Catherine Livermore of Rochester, studied at the Art Students' League of New York and at the Académie Julien and Collorossi in Paris; his paintings, exhibited in America and in Europe, drew the favorable attention of John LaFarge (1835-1910). He was married in 1912 to Gertrude Gregory Pease, of Ridgewood, New Jersey, who died in 1917. Since 1928 Dr. Anderson and A. O. Anderson have lived at Mt. Tremper, in the Catskill Mountains, New York, where they conduct extensive work in reforestation (1946).

Amos L. Baker (1852-1932), son of Gorham Baker and Harriet Stowers Baker, was born near Sharon, Franklin County, Maine, on December 6, 1852. His parents were farmers, there were several children, and money was scarce, so that he earned his own way through school and college. After leaving the district schools, he entered Western State Normal School at Farmington, Maine, from which he was graduated in 1876, and in 1881 he finished the course of the Maine Central Institute, at Pittsfield, a classical school whose graduates were qualified to teach in high schools. For a year or two thereafter he taught in the public schools of Maine before coming, about 1883, to Dover, Olmsted County, Minnesota.

In Dover he served two years as superintendent of the village schools and at the same time read medicine under the direction of Dr. A. W. Stinchfield, of Eyota, a few miles west. The long summer vacations he spent in Dakota Territory, at Onida, where he took up a claim, and at Blunt, where he worked at carpentry to improve his finances. On Friday, June 12, 1885, the Dover schools, which had been "under the able management of Professor A. L. Baker, assisted by Mrs. Horace Witherstine," closed for the year. They were "never in more flourishing condition." Mr. Baker was removing to Eyota to study intensively with Dr. Stinchfield.

In the autumn of 1885 Amos L. Baker, more than ten years older than the average medical student, entered Rush Medical College at Chicago; he had sold the relinquishment of his Dakota claim to help with his expenses. In February, 1887, he was graduated with the degree of doctor of medicine and immediately afterward he left for Maine, where he was married to Lula E. Atwood, at Winterport, near Monroe, Waldo County. Miss Atwood, a native of Monroe, had been from 1882 to 1886 principal of the high school at Northfield, Minnesota; she and her husband first met in their student days at Maine Central Institute. Her brother Charles was a physician who practiced at Winterport until his death in the early 1900's; her sister Abbie was married to Dr. John Sewell, of Boston.

Dr. Baker began his initial medical practice at Plainview, Wabasha County, on June 15, 1887, filing with the clerk of court at Wabasha his state certificate No. 1448 (R), which had been issued five days earlier. During his residence in Plainview he occasionally substituted for Dr. Stinchfield and Dr. Nathaniel S. Lane, when those partners were at medical meetings. When Dr. Lane removed to North St. Paul in December, 1887, Dr. Stinchfield invited Dr. Baker into partnership.

For the next two years Dr. and Mrs. Baker were residents of Eyota. Cultured and intellectual, they were representative of down-East manners and customs in the finest tradition. In the vicinity of Dover and Eyota, where many pioneers from New England had settled, they found a congenial atmosphere and there as elsewhere they won and held the admiration and affectionate regard of all who knew them. They furthered civic and educational interests and were supporters of the Methodist Episcopal Church. The doctor was a member of the Masonic Lodge and the Independent Order of Odd Fellows.

From Eyota Dr. Baker removed in April, 1890, to Pleasant Grove, where a vacancy had existed since Dr. Alonzo W. Hill, the local physician from early days, left for the West in the previous autumn. In Pleasant Grove the Baker home and office were in the Russell House. In January, 1891, when a fire destroyed both household and professional equipment and even currency, the doctor in battling the flames incurred sciatica that disabled him for months. He was recovering and had leased new quarters when one day a delegation of citizens from Byron, in Kalmar Township, called to invite him to that village as resident physician. He accepted, bought the practice of Dr. Frank M. Johnson, who was leaving Byron for Dover, and by September 1, 1891, was established in the community that he was to serve well for the next nine years. When the Southern Minnesota Medical Association, of which he was a founder and sometime president, was holding its annual meeting at Rochester in August, 1893, the current officers authorized newspaper comment on "some of the leading members present"; "Dr. A. L. Baker of Byron is one of the best posted among the young men and is a rustler. He has secured a large practice in Byron, and that community is to be congratulated on having so good a man located in its midst."

In September, 1900, after Dr. Charles O. Wright had left Kasson, Dodge County, west of Byron, Dr. Baker with his wife and two daughters settled in that village, which for thirty-two years was the family home and the center of Dr. Baker's exceptionally active and intensive practice.

Dr. Baker was the invaluable village and country doctor of the best and highest type, in sympathy with the needs of the people, who had absolute confidence in him, and with the expanding function, scientific and humanitarian, of his profession. He served many terms as county physician in the different communities of his residence. A keen diagnostician of sound judgment, he had the important virtue that in a difficult case he never hesitated to call for professional consultation. He early became a constructive member of local county medical societies, the Southern Minnesota Medical Association, as noted, and of the Minnesota State Medical Society and the American Medical Association. By frequent clinical trips and postgraduate courses, notably at the New York Polyclinic Medical School and Hospital, and by additions to his library and therapeutic equipment he kept in touch with and aided medical advance.

In 1926 Dr. Baker retired from practice because of failing health; he died at Kasson on July 22, 1932, from cardiorenal disease, survived by Mrs. Baker and the two daughters. Ethel Baker Odden, a graduate of Winona Teachers College, is the wife of Knute Odden, a pharmacist, of Benson, Minnesota. Mr. and Mrs. Odden have three sons: Richard, with the United States Army during World War II; Robert, an electrical engineer with Farnsworth, in Indiana; and Lloyd, in his third year (1945) with the United States Merchant Marine. Vera Baker Tice, a graduate of Stout Institute, is married to Harvey A. Tice, native of Omro, Wisconsin, machine shop teacher at Technical High School of St. Cloud. After Dr. Baker's death Mrs. Baker made her home with Mrs. Tice, for eight years at Huron, South Dakota, and for one year at St. Cloud; she died at St. Cloud on January 26, 1941.

Nathan Morton Baker (1859-1928) was an assistant physician, the ninth appointee, on the staff of the Second Minnesota Hospital for Insane, at Rochester, Minnesota, from October, 1889, to May, 1893.

Born near St. Peter, Minnesota, in 1859, he received his preliminary education in the public schools of Le Sueur County and in St. Peter, Nicollet County, and in 1884 was graduated from the University of Minnesota with the degree of Bachelor of Arts. Subsequently he taught school and later was chemist at the laboratories of the state board of health at Red Wing. Having decided on the profession of medicine, he entered the medical department of the University of Pennsylvania, from which he was graduated in the spring of 1889. On his return to Minnesota he received, on July 6, 1889, as a resident of Goodhue County, license No. 65 (R) from the medical examining board of Minnesota; this certificate in due time he filed in Olmsted County.

During his years in Rochester Dr. Baker made annual trips of several weeks each to New York and Philadelphia for special medical study, and he became a member of the Olmsted County Medical Society and the Minnesota State Medical Society. Social circles found him an asset because of his personal worth and gracious ease and wit, and professional associates valued him in addition for his skill, his equable temper and his ethical conduct.

In May, 1893, Dr. Baker left Rochester for St. Peter, where he was called to serve as assistant superintendent of the Minnesota Hospital for Insane under Dr. H. A. Tomlinson. There again his record was excellent. When he resigned in May, 1895, to enter private practice in Spokane, Washington, the trustees of the hospital paid formal tribute to him as a fine man and conscientious physician.

In Spokane, where he married, Dr. Baker for more than thirty years conducted a general practice, with special interest in surgery. His offices for many years were in the Old National Bank Building, later in the Fernwell Building, and still later in the Paulsen Building. He was a member of the city board of health, of the Spokane County Medical Society (once its president), of the state medical organization and of the American Medical Association. His death occurred in Spokane in 1928.

Ira C. Bardwell, born in Wayne County, New York, in February, 1812, removed with his parents when he was seven years old to Livingston County, New York, where he received his early education and where, as a young man, he read medicine in the office of Dr. Champlain for a year and a half. He next went to Steuben County, New York, and from there to Willoughby, Ohio, where he studied and attended medical lectures two years. For the next few years, always trending west, he practiced medicine at different places, and in the early fifties was in Prophetstown, Illinois.

Early in 1856 Dr. Bardwell, a reputable physician and surgeon, arrived in Rochester, Olmsted County, Minnesota, accompanied by his wife, Louisa Cutler Bardwell, a native of Massachusetts, to whom he was married in 1837. Shortly after his arrival Dr. Bardwell was appointed to a two-year term as the first clerk of the district court for Olmsted County; he served at the first session of the court on April 4, 1856.

In 1859 with his family he left Rochester to settle in the prosperous village of Pleasant Grove in Pleasant Grove Township. Here for twenty-nine years, until the coming of Dr. Alonzo W. Hill, in 1878, he was the only active resident physician; vague reference has been noted to a Dr. Chase and to "the good and venerable Dr. Hunt" who were there in the sixties. Dr. Bardwell was esteemed as citizen and physician and he served his community well. He was local health officer; he was a Republican who faithfully attended county conventions; and a Mason, member of the Pleasant Grove lodge. In August, 1871, when a picnic was held on College Hill, in Rochester, for organization of the Olmsted County Old Settlers' Association, Dr. Bardwell was elected vice president for his section of the county.

Little has appeared about the children of Dr. and Mrs. Bardwell. In November, 1870, a daughter, Ella C. Bardwell, was married at the home of her parents to

J. C. Wagoner; in December, 1878, Ella Bardwell Wagoner was married to Adrien Peck. In the *History of Winona and Olmsted Counties,* of 1883, Mrs. Peck was mentioned as the only living child of Dr. and Mrs. Bardwell.

On April 6, 1883, the *Rochester Post* reported that Dr. Bardwell had sold his residence and other property in Pleasant Grove to D. W. Johnson. This sale no doubt was in preparation for removal to Dakota Territory; on June 13, 1884, the Rochester *Record and Union* noted the death in Sioux Falls of Mrs. Ira C. Bardwell, formerly of Pleasant Grove. It is probable that Dr. Bardwell, seventy-one years old in 1883, did not practice medicine in Dakota; his name does not appear in the roster of physicians who registered in Dakota Territory between June 5, 1885, and June 30, 1890.

For the sake of record: In certain old commercial directories Dr. Bardwell's initials appear in various inaccurate combinations, and in one work the name was printed "Bredwell."

Elbert E. Barnum (1851-1907) was for a few months a member of the medical profession of Olmsted County. Born in 1851, a graduate of the medical department of the University of Michigan in 1876, Dr. Barnum in August, 1884, settled in Eyota, Olmsted County, where he had his office in his residence, the "first door west of Walter Dixon's." Well qualified though he was, he stayed in Eyota so short a time as to leave little impress on the community. In the official directory of physicians of Minnesota for 1883-1890 Dr. Barnum was listed as resident at St. Peter, Nicollet County, holder of state license No. 1293 (R), which was issued on December 10, 1886. Prior to 1896 he was well established in Pine City, Pine County; he died there from pneumonia in January, 1907.

Marshall Thomas Bascomb (1851-1899), who spent his boyhood in Oronoco, Olmsted County, practiced medicine in Pleasant Grove from 1895 to 1899.

Newell Bascomb, father of Marshall Thomas Bascomb, was born on October 25, 1819, in Vermont, the son of Asa Bascomb and Abigail Palmer Bascomb, both of whom were natives of Franklin County, Vermont. Asa Bascomb served the United States on Lake Champlain in the War of 1812. Newell Bascomb in early life went to Cleveland, Ohio, and there and in Mount Vernon, Ohio, followed his trade of carpenter and joiner until 1855. In the autumn of that year he came to Oronoco, Minnesota, where he established a home and sent for his family. He had been married on March 12, 1843, to Mary A. Upton-Damon, daughter of George and Mary Upton-Damon, of Fairfax, Vermont. There were four children of the marriage: Orwin Newell was born on October 20, 1844, and died on April 12, 1865, in a military hospital at Gallatin, Tennessee, from disease incurred in line of duty in the United States Army during the Civil War. Edwin Gordon Bascomb was born on September 1, 1846; he was married on February 13, 1878, to Carrie Wheat, daughter of Dr. and Mrs. John N. Wheat of Austin; Dr. Wheat in the early eighties practiced for a year or two in Rochester. Sarah M. Bascomb was born on June 23, 1849, and was married on December 25, 1866, to Warren Wirt of Oronoco Township, and years later to Mr. Goodell of Oronoco.

Marshall T. Bascomb was born on November 18, 1851, and was four years old when, in a bitter December, Mrs. Bascomb with her young family made the hazardous trip to Minnesota to join her husband. Traveling overland from Ohio to Galena, Illinois, she caught the last steamer of the season to forge up the ice-clogged Mississippi. At La Crosse the boat was frozen at the levee, and it was two weeks before Mrs. Bascomb could get across the river on the last lap of her journey, over hills and prairies. Many travelers perished on the trails during that period, and Newell Bascomb had given his family up for lost when they at last arrived at Oronoco. Only the fact that Mrs. Bascomb had brought many bedclothes, which served as wraps, had saved them. As it was, Sarah and Marshall had frozen their feet.

Marshall T. Bascomb was a pupil in the schools of Oronoco and of Rochester and in the early seventies took a course of medical study at the University of Michigan. In 1875 he was married to Ella B. Cook, daughter of Mr. and Mrs. Martin W. Cook, respected pioneer citizens of Rochester. Martin W. Cook was a native of Canada; his wife was Mary Benedict, from Connecticut. In Olmsted County Mr. Cook was an inaugurator of dairying and fruit farming.

There is record that from 1877 to 1879 Dr. Bascomb practiced medicine in Brownsdale and in Grand Meadow, Mower County, and that for a year or more in 1880 and 1881 he practiced at Eau Galle, Wisconsin. The *Rochester Post* of October 28, 1881, reported that Dr. M. T. Bascomb had gone to Cleveland to attend medical college. On March 14, 1882, he received the degree of doctor of medicine at Western Reserve University and immediately afterward went to Clark, Clark County, Dakota Territory; under the medical practice act of Dakota, in 1885, he registered on July 9 of that year. While in Clark he was a member of the state board of health, in 1893-1894, and county coroner, 1894.

In 1895 Dr. Bascomb returned to Olmsted County to be near relatives, settled in Pleasant Grove, and opened a drugstore as an adjunct to the practice of medicine. The village had lacked a physician since Dr. A. L. Baker left for Byron in the summer of 1892, and Dr. Bascomb, able practitioner and upright citizen, jolly, likeable and good-looking, with his wife and two sons was well received. He had a general practice and at the same time devoted special attention to orthopedics, a field in which he studied to improve his knowledge and skill. He was a strong member of the Olmsted County Medical Society and the Southern Minnesota Medical Association. He served as local county physician during most of his years in Pleasant Grove. He was active in fraternal organizations, among them the Masonic Lodge, Knights of Pythias, Independent Order of Odd Fellows, the Ancient Order of United Workmen and the Modern Woodmen of America.

Dr. Bascomb by reason of personal qualities and professional service was one of Olmsted County's best known and most respected physicians. Regrettably his gradually failing health limited and shortened his career. He died in his forty-eighth year, on January 28, 1899, a few days after undergoing an operation for removal of gallstones, at St. Mary's Hospital, Rochester. He was survived by his wife, two sons, Fayette W. Bascomb and Marshall R. Bascomb, his mother, his sister Sarah and his brother, Edward G. Bascomb, of Austin.

Some weeks after Dr. Bascomb's death Dr. Simeon P. Meredith (*q.v.*), of Spring Valley, Fillmore County, bought the practice and drugstore, and Mrs. Bascomb removed to Rochester, and later to Minneapolis. She died in Hollywood, California, on July 11, 1931. The elder son, Fayette W. Bascomb, became a manufacturing chemist. The younger son, Marshall Royton Bascomb, in 1924 was graduated from the General Medical College of Illinois; in 1947 he was a practicing physician and surgeon at Maywood, Illinois. He was married on July 6, 1923, to Hulda E. Johnson; Dr. and Mrs. Bascomb have one son, a manufacturing chemist.

(To be Continued in the April issue)

President's Letter

WHY COMPROMISE?

NOW AND AGAIN some physician says, "The welfare trend is here. We can't stop it. Let's just compromise and salvage what we can."

That, in my opinion, is the worst type of defeatism. It does not demonstrate a broad-minded tolerance for alternative viewpoints as, superficially, it would seem to. No, it's cowardly thinking, lazy thinking and it has not even the saving grace of logic.

For there can be no compromise with facts.

Medicine has given the American people the highest standard of healthy living, the greatest research discoveries in history, more than twenty additional years of life expectancy and a freedom from disease and suffering never before and never elsewhere experienced.

These are facts.

Medicine is threatened now with a curtailment of its freedom, a regimentation into uniform mediocrity, through annexation by the government, that would not only destroy a proud profession but would rob Americans of the advantages they now possess and the great health-potential of the future.

These are facts.

The medical profession has, therefore, set out to tell these facts to the people who should know them—the people who, in a democratic way, will decide the issue. The education process is being financed by physicians who believe that Americans are as much entitled to the facts about health as they are to health itself. Every medium of communication is being taken into consideration, and no effort is being spared in this highly important educational work.

As in the case of those who would compromise with the facts, there are those in the profession who would compromise in the measures taken to ward off this first approach to the welfare state. These are the physicians whose contributions to the campaign are negative ones—who apparently think that their responsibility in the informational project is limited to criticizing the methods of conducting it.

This compromise of inaction is as disastrous as out and out opposition.

Unfortunately, some of our members, who failed to assume the obligation of an AMA assessment in 1949, have been guilty of a compromise of inaction that not only detracts from the financial backing necessary for a program of this scope and intensity, but weakens the spirit of unity and strength that should characterize the message of the American Family Doctor to the American public he serves.

Let's not be guilty here of further compromises with fact and action.

F. J. Elias.

President, Minnesota State Medical Association

◆ Editorial ◆

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

DOCTOR ROSSEN—COMMISSIONER OF MENTAL HEALTH

THE dinner held at the Coffman Memorial Building at the University of Minnesota on the evening of February 2, 1950, served to publicise the assumption of duties of the first Commissioner of Mental Health of the State of Minnesota by Dr. Ralph Rossen. Appointed December 15, 1949, Dr. Rossen officially took charge on February 1. The dinner was arranged by a special committee, of which Dr. Ernest M. Hammes of Saint Paul was chairman, and was attended by some 950 individuals from all over the state who are interested in the new mental health program which has been so ably sponsored by Governor Youngdahl. The Governor, appropriately and with his usual ability, presided at the dinner and called upon a number of those active in the state's program who attested Dr. Rossen's qualifications and pledged him their support.

The care of the mentally ill has always been a neglected field. Commonly a long drawn out illness, most families have been forced to rely on state aid in the care of affected family members. As a rule, the care provided has been custodial only, and a hopeless attitude as to cure has been evident. Today such a pessimistic view is not justified, for a sizeable percentage of the mentally ill recover and resume their places in society.

There has been a growing consciousness that much too little was being done for the mentally ill by our State. The survey of the mental sanatoria by Mr. Ries, under the sponsorship of the Minnesota Unitarian Committee, of which the Reverend Arthur Forte was chairman, confirmed the suspicion. Our Governor, with his Advisory Council, backed the bill for increased appropriations which passed the Senate without a dissenting voice and was signed by the Governor on April 20, 1949. This provided for an increase of 15 million dollars in the appropriation over the last biennium for expanding the care of the mentally ill within the State. This includes the construction of new wings and buildings, modernizing the present institutions, the employment of enough personnel to man the institutions, a forty-hour week for institutional employes, a psychiatric training program to staff the hospitals, and a research program. The bill provides, in addition to the creation of a Commissioner of Mental Health, the appointment of two psychiatrists, a chief nurse, a chief psychiatric social worker, a chief dietitian, a chief psychologist, a personnel manager, and a supervisor of maintenance work.

In the not so distant past, the State appropriated but $1.50 a day for the over-all care of its mental patients which now number 14,000 in the ten state hospitals. This has been increased recently to $3.00 a day which is about half the $5.85 a day cost at the Veterans Psychiatric Hospital at St. Cloud. There is good reason to believe that with a sufficiently well-trained personnel, the turn-over of patients can be greatly increased to the benefit of patients and taxpayers.

In entering this new mental health program, Minnesota is taking its place among the states that are pioneers in this enlightened outlook in the care of the mentally ill. Other states will have their eyes upon us.

The choice of Dr. Ralph Rossen seems to have met unanimous approval. Born in Hibbing, Minnesota, he is a graduate of the University of Minnesota Medical School and has taken advanced degrees in psychiatry and neurology. Assistant superintendent at St. Peter in 1936 before serving as a Lieutenant Commander in the Navy, he became superintendent at the Hastings mental hospital at the age of twenty-eight. He is said to have done away with restraints at this hospital—no mean accomplishment. He is also said to have a personal acquaintance with all his patients. Our best wishes go to Dr. Rossen in his new undertaking. As he has stated, progress will of necessity be slow.

NATIONAL HEALTH PROPOSALS

PHYSICIANS who attended the Democratic-Farmer-Labor Conference on National Health Proposals at the Radisson Hotel in Minneapolis on Saturday, February 18, could not fail to be impressed with the importance of the health issues before the American people today. The meeting was supposed to be in the nature of a workshop for the presentation of various subjects such as the Truman Health Program, the Voluntary and Cooperative Health Plans, the points of view of the AMA and CIO, ending with a summary by Senator Hubert H. Humphrey.

Much of the program constituted fair and instructive presentations of the various health subjects. Dr. Elmer Hess, vice chairman of the Council on Medical Sciences of the AMA, gave an able presentation of the reasons members of the medical profession favor voluntary insurance plans to provide for the cost of medical care and are opposed to compulsory government insurance.

Roy Reuther, one of the three Reuther brothers of CIO fame and himself co-ordinator of political action of the United Auto Workers, let it be known in no uncertain terms that the members of his labor unions want government-supplied medical care and intend to attain their objective. He severely criticized the AMA for what he called its horse-and-buggy day attitudes in public relations. He claimed that the AMA had early opposed the principle of voluntary insurance plans recommended in the report of the Committee on the Cost of Medical Care which appeared in 1932; that support was given to the Blue Cross and Blue Shield plans only when the government threatened to supply this type of hospital and health insurance on a compulsory basis. He mentioned the Group Health experience in Washington, the 5,000,000 rejected draftees as a proof of the deplorable lack of medical care in our country, the necessity for compulsory $25.00 AMA dues because of the poor response of the membership on a voluntary basis, the low overhead cost of government-operated insurance compared with private insurance, and now the accusation of socialism and even communism when the proposal of compulsory government medical care is made. All of these statements merit more amplification than is possible here. Suffice it to say that many in the medical profession from the onset backed the voluntary insurance principle to meet the high cost of hospital care; that the medical profession deserves the credit for the Blue Shield which was advocated in certain quarters at least as far back as 1932; that there was considerable question as to the legality by the appropriation of government funds for the establishment of Group Health in Washington; that the number of rejections at the time of the draft for World War II does not constitute a deplorable condition of health amongst the American youth which could be bettered by compulsory government health insurance; that the $25.00 dues is to provide funds for informing the public about the advantages of free enterprise and is not a lobby fund (there is some truth to the statement that the response to the voluntary assessment of $25.00 in 1949 was not as great as it should have been); that government operation of any undertaking has always proven more expensive than private management. The insistence that compulsory government health insurance is not socialism is so absurd that it smacks of the psychology put forth in *Mein Kampf*. If a falsehood is repeated often enough, a certain amount of credence will result.

Our Senator Humphrey wound up the program with a summary of the national health proposals. His statement that the battle for national health insurance has already been won received widespread newspaper publicity. It was certainly a startling statement, and we beg to suggest that there may be room for some difference of opinion. He, being a member of the Committee on Labor and Public Welfare, should know whereof he speaks when he states that the Senate has already passed four of the seven points in Truman's Health Plan. According to Mr. Humphrey, all that remains to be done is to select one of the five health insurance bills now before the Senate. The total cost to the Federal Government of the Truman health proposals already passed by the Senate will amount to an estimated $300,000,000 a year, for which Senator Humphrey believes there will be more than due compensation by the cutting down in sickness and the saving of lives.

It was unfortunate that Senator Humphrey seemed so vindictive in his attitude toward the AMA and the local profession.* The Senator had

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*The Senator claimed that the AMA had insulted Senator Murray of Montana by failing to answer his request for assistance in drawing up the 1946 Wagner-Murray-Dingell Bill. He also resented the statement which appeared in *The Bulletin of the Hennepin County Medical Society* of September, 1949 that "Senator Hubert H. Humphrey, with his usual agility to distort facts, stated that Reorganization Plan No. I was in line with the recommendations offered by the Hoover Commission." What happened was that the Task Force of the Hoover Commission which had to do with the reorganization of the medical activities of the Federal Government made a supplemental report which appeared in March, 1949, recommending that these governmental activities be established as a Health Department under a physician with the status of a Cabinet Officer instead of being included with Social Security and the Department of Education as a Welfare Department as provided in Reorganization Plan No. I. It is stated that Mr. Hoover gave his approval to Reorganization Plan No. I at the time hearings were being held by the Senate Committee. Thus the Hoover Commission made one recommendation and Mr. Hoover another. Therefore, a statement that Mr. Hoover recommended Reorganization Plan No. I would not have told the whole story. The medical profession also blocked the Reorganization Plan No. I which was backed by our Senator.

received many replies to the letters he had sent the profession asking for an expression of their opinion on health matters. So he must have known that his activities in Washington in backing President Truman's health plans have not met with their approval. Possibly the result of the recent poll of the *Minneapolis Tribune* has not been called to his attention. Whereas, according to the *Tribune's* poll held in February, 1949, 56 per cent favored a national health insurance and only 23 per cent were against it in September, 1949, in answer to the question as to whether one would like to see a health program similar to Britain's adopted in this country, only 29 per cent voted yes and 53 per cent voted no. This is very evidently a reversal in public opinion in Minnesota.

After all, our senators as well as representatives in Washington are supposed to represent the ideas and further the wishes of their constituents. They are the servants of the people, not their rulers, and are delegated to pass laws according to the wishes of their constituents. The Democratic platform in the last national election did not include a plank for compulsory government health insurance, and Senator Humphrey need not feel in duty bound to support such legislation on that score. We, the people, include a lot more than the officials of certain labor unions, and there are certain indications that we are beginning to arouse ourselves to oppose the extension of socialism in our country.

COURSE FOR NATIONAL GUARD AND RESERVE OFFICERS

For the convenience of National Guard and Reserve medical officers, the School of Aviation Medicine at Randolph Field, Texas, has divided its Aviation Medical Examiner course into three phases of three weeks each. It is anticipated that many National Guard and reserve officers who have been unable to leave their civilian practice long enough to take the course can now do so by taking it in installments of three weeks each. The only requirement is that they complete the nine weeks of special medical training over a period of four years. However, this does not preclude a National Guard or reserve officer from taking two phases of the course or the entire course in one year if he wishes to do so. The National Guard and reserve officers who take the course by phase will be required to complete their two weeks of flight indoctrination with the National Guard or reserve unit to which they are or may be assigned. On completion of the course they will be rated as Aviation Medical Examiners and qualified to serve as such with their respective National Guard and reserve units. After a year of such duty in the field, and on proper recommendation, they will be eligible to become flight surgeons.

OUR SOCIAL SECURITY

Our legislative and administrative difficulties with the Social Security Act have arisen largely from the fact that the Act sets up two competing methods for tackling dependency: social assistance and social insurance. The latter is a cruel hoax. Workers are not buying insurance; they are not paying premiums; they are paying an ordinary income tax.† They do not have a contractual agreement that for such and such a premium they will be entitled to a certain annuity at age 65. The workers of this country think they are paying for old-age annuities which will become payable at age 65. In reality they will not get anything unless they stop work, and unless they have had a specified number of years in covered employment. What they will get, if they get it, is a small wage-loss retirement annuity which will come to them as a gift from the Government, that is, from other taxpayers. These facts should be explained to the people so that we may have an end to all this talk about "benefits as rights."

The fact to be borne in mind is that millions of workers are destined to be fooled. Even now they are being cheated right and left, while the Government pockets the taxes without either paying benefits or returning what the individual has paid in. Thus a woman may work for 8 or 9 years before marriage and may never again return to the labor market. At age 65, if her husband has qualified under OASI, she will be insured by virtue of her married status and will be entitled to the fractional benefits accruing to her as wife or widow of an insured worker. However, she would have been entitled to those benefits even had she paid no taxes herself. She has thus been cheated out of 8 or 9 years' taxes for which she receives nothing at all. In the aggregate, the Government "saves" large sums by the scheme. I leave it to you to decide what name to apply to that sort of sharp practice.

I wish to call to your attention still another form of "saving" which Federal officials have in mind. There are now 3.5 million persons 65 and over who are entitled to benefits. Of this number 1.5 million have not applied for OASI benefits, presumably because they do not know their rights or are still working. During the next 50 years millions of workers will be cheated in this way. They will pay taxes for years but never collect anything. This is part of the Federal plan, not an accident. The Council of Economic Advisers to the President, in discussing this matter, states:

"The following table illustrates, for the next quarter century, the probable growth of the total aged population and of the numbers eligible for and receiving retirement benefits under proposed legislation. The estimates are based on our belief that many aged individuals will not retire voluntarily in an economy with abundant job opportunities. Accordingly, the number of individuals receiving benefits is estimated to be well below the number eligible under the insurance system."*—*American Medicine and the Political Scene,* February 2, 1950.

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†Supreme Court of the United States, Helvering v. Davis, Brief for petitioners, 910, p. 40, 1937.

*The Economic Report of the President, transmitted to the Congress January 6, 1950, p. 121.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

ORGANIZATIONS IN STATE OPPOSE SOCIALIZED MEDICINE

Minnesota has 119 organizations on record against compulsory health insurance, making it eighth in the nation, according to a report issued by Dr. Elmer L. Henderson, chairman of the Campaign Co-ordinating Committee of the AMA's education campaign.

Much credit is given by Dr. Henderson to the state medical associations for their efforts to get state and local organizations to pass resolutions against socialized medicine. Continued action of the state medical association in making data available to the public, will assure an even better record for 1950.

Organizations on record against compulsory health insurance include 145 national, 480 state and 2,136 local groups, a total of 2,761 organizations, the report states. The first seven states and their total resolutions are: Indiana, 385; Illinois, 166; Pennsylvania, 160; Michigan, 152; New York, 140; West Virginia, 131; Ohio, 125.

Dr. Henderson notes that facts have proven the case against government medicine for these organizations. He says:

> "All organizations listed in this report have raised their voices in formal protest against compulsory health insurance.
>
> "They have studied the facts behind this important public issue, and by their action, have notified their national lawmakers that they are opposed to government control of medicine or for any further destruction of their basic American freedoms.
>
> "This is the 'grass roots' voice of the American people.
>
> "Numerous organizations are taking a position on a national issue for the first time—and doing it in spite of charter restrictions or partisan politics or precedent to the contrary. This is real proof of the growing recognition that the principles underlying this campaign are the same as those underlying democracy itself."

MEDICAL COSTS MORE EASILY PAID HERE

The cost of medical care, recurrent theme of government-medicine addicts, is not so much a problem to be answered in terms of dollars, but in time it takes a worker to earn those dollars. Economists point out that the important consideration is not that an appendectomy costs $150, but how long the patient has worked to earn $150 and the relationship of that sum to the price of other commodities.

The Standard Steel Spring company of Pennsylvania has released figures showing that, in the United States, it takes an average of thirty-eight and one-half hours of work to purchase a two-pants wool suit. The report states that an Englishman would work 163 hours for that same suit and a Russian, 506 hours. By the time the Russian earned enough to purchase one suit, the American could have bought thirteen. In other words, the American's earning power is about four times that of the Englishman and over ten times that of the Russian.

> "It is only natural, therefore, that Americans should own more commodities because their purchasing power is far greater. They are wealthier. In the United States one out of every four people owns a car; in socialist England there is one car for every twenty-two; in communist Russia, one for 252. In the free United States one of every three people owns a radio; in England there is one for five, and in Russia one for forty-five. Or take the telephone. In America there is one telephone for every five people; in socialist England there is one for every 155; in communist Russia there is one for every 188."

Americans, then, work fewer hours for the necessities and luxuries of life. But even in a democracy the cost of government is high (right now, to pay obligations of past wars, the average man must, each year, work eleven days; for defense and the cold war, twenty-four days; other federal expenses, twelve days; state and local taxes, fourteen days). And, if present "welfare" plans now before Congress are passed, Mr. American citizen will contribute one-third of his working time to the government.

ANALYSIS SHOWS UNITED STATES HEALTHIEST NATION

Despite figures showing that two other countries have a higher health index than the United States, Representative Donald L. Jackson, California, contends that American standards are highest. He reasons that advanced methods of statistical and medical research here make possible an analysis of national health that cannot be matched for accuracy.

He noted that there are statistics which show that other countries have a higher health index, but, he said, these statistics "should be carefully weighed to determine whether or not the published mortality figures exclude the aboriginal or native populations. The Maori tribes of New Zealand, which country is one of only two nations in the world with a better health index than the United States, are not computed in arriving at mortality and clinical data. In our own case, every segment of our population is considered in arriving at national health figures."

Research Advancing

Amplifying his thesis, Representative Jackson added:

> "In brief, American health standards are more adequate and more comprehensive than those of any other country in the world. When one looks for disease it will be found, but no one should draw any hasty conclusions or make comparisons of our national health on the basis of discovery and knowledge. We know of illness and disease here at home *only because our efficient clinical methods have brought the conditions to light.*"

Citing another aspect of the national health comparisons, he said, "Ours is the only country in the world today which is expending vast sums of money for research into the causes and cure of those diseases which are the great killers of our day."

Our health standards will stay as high as they are, and continue to improve as long as we can keep our health insurance on a voluntary basis. Mr. Jackson emphasized:

> "If the government is to assist in insuring better health to the American people, it is my opinion that the assistance can be better rendered at the local levels of government than by building a new Pentagon Building in Washington, D. C. . . . I believe that American ingenuity, proceeding on a voluntary and American basis, can meet the need for completely adequate protection."

SECURITY REPLACING FREEDOM AS GOAL

Many present-day Americans are trying to avoid the personal responsibility of freedom, Dean Russell of the Foundation for Economic Education says in his new pamphlet "Wards of the Government." By voting for men who promise to install a system of compulsory, government-guaranteed "security," they are voting for a partial return to the old slave laws of Georgia that guaranteed to all slaves "the right to food and raiment, to kind attention when sick, to maintenance in old age." Mr. Russell notes that the arguments used to foster the compulsory security program today are very similar to those used to defend slavery in Lincoln's day. For example, he says:

> ". . . many of the slaveholders claimed that they knew what was 'best for the slaves.' After all, hadn't the masters 'rescued' the slaves from a life of savagery? The advocates of government-guaranteed 'security' also claim that they know what is best for the people. Many of them argue in this fashion: 'After all, haven't the American people conclusively shown that they are incapable of handling the responsibility for their own welfare?'
>
> "Many of the slaveholders sincerely believed that the 'dumb, ignorant slaves' would starve to death unless their welfare was guaranteed by the masters. And the advocates of compulsory 'security' frequently say: 'Are you in favor of letting the people starve?' "

The advocates of government insurance seem to indicate that they believe all Americans are too ignorant, or lazy, or worthless to be trusted with their own responsibility of free choice in these matters, and it is quite true that those already receiving support from the state are led to expect, and to demand, more and more support from the state. Thus they become dependents.

The constitutions of former American slave states usually specified that the masters must provide their slaves with adequate housing, food, medical care and old age benefits. The Mississippi constitution contained this sentence:

> "The legislature shall have no power to pass laws for the emancipation of slaves . . . (except) where the slave shall have rendered the State some distinguished service;"

Apropos, Mr. Russell comments that the highest honor that Mississippi could offer a man for distinguished service to his country was personal responsibility for his own welfare.

> "His reward was freedom to find his own job and to have his own earnings, freedom to be responsible for his own housing, freedom to arrange for his own medical care, freedom to save for his own old age. In short, his reward was the individual opportunities—and the personal responsibilities—that have always distinguished a free man from a dependent.
>
> "What higher honor can any government offer?"

The Choice Is Ours

Mr. Russell gives this sound advice to those still fortunate enough to have a choice between freedom and government control:

> "Before choosing, however, consider this: When one chooses freedom, that is, personal responsibility, he should understand that his decision will not meet with popular approval. It is almost certain that he will be called vile names when he tries to explain that compulsory government 'security'—jobs, medicine, housing, and all the rest—is bad in principle and in its total effect; it saps character and strength by encouraging greed and weakness; it destroys the individual's God-given responsibility for self-help, respect, compassion and charity; in some degree, it automatically turns all who accept it into wards of the government; it will eventually turn a proud and responsible people into cringing dependence upon the whims of an all-powerful state; it is the primrose path to serfdom.
>
> "No, the choice is not an easy one. But then, the choice of freedom never has been easy. It never will be easy. Since this capacity for personal responsibility—freedom—is God's most precious gift to mankind, it requires the highest form of understanding and courage."

CONGRESS, BILLS AND TAXES

The 81st Congress is considering more bills relating to the public health and welfare than any United States Congress ever has, thereby emphasizing the omnipresent danger of not only compulsory medicine, but the entire gamut of government controls on the individual that socialism can bring.

During the first session there were 226 such bills on the docket; and, of this number, about sixteen related to health insurance and about sixty to social security. The 79th Congress had about seventy-five bills, and the 80th Congress considered a few more than 200 similar bills.

Most of these "security" bills, if passed, naturally would mean more taxes for the American people. The cost of the compulsory health insurance bill alone has been estimated often at 15 billion dollars per year.

But the individual, who already pays from 20 to 25 per cent of his wages in taxes to the government, should have even more cause for alarm over this raft of new taxes pending in the form of "security" bills. He may be interested to know that the federal government is taking 74 per cent of the total taxes collected and leaving only 26 per cent for state *and* local governments. Results: crippling of local responsibilities and individual freedom.

THE "ISM" MANIA

Nowadays when sociological planning is couched largely in "ism" words, it is interesting to consider a literal application of the theories being propounded. The Colorado Department of Agriculture makes its translation of theory by means of a simple bovine equation, thus:

Idealism: If you have two cows you milk them both, use all the milk you need and have enough left for everyone else.

Socialism: If you have two cows, you keep one and give the other to your neighbor.

Communism: If you have two cows, you give both to the Government; then the Government gives you back some milk.

Soft-Pink Communism: If you have two cows, you're a capitalist.

Imperialism: If you have two cows, you steal somebody's bull.

Capitalism: If you have two cows, you sell one cow and buy a bull.

New Dealism: If you have two cows, the government shoots one cow, you milk the other cow, then throw part of the milk down the sink.

Anarchism: If you have two cows, your neighbor shoots one and takes the other.

Nazism: If you have two cows, the government shoots you and takes both cows.

Realism: If you have two cows, they're both dry.

It is increasingly clear that screening the general population for tuberculosis must be combined and coordinated with other screening programs for other important pathological conditions—such as cardio-vascular disease, cancer, syphilis, and diabetes—similarly characterized by relatively long subclinical periods in which detection may be life conserving or important to community protection.—JAMES E. PERKINS, M.D., *Bull. Nat. Tuberc. A.*, January, 1950.

✦ Reports and Announcements ✦

INTERNATIONAL AND FOURTH AMERICAN CONGRESS ON OBSTETRICS AND GYNECOLOGY

The International and Fourth American Congress on Obstetrics and Gynecology will take place at the Statler Hotel, Chicago, May 14 through 19. Mornings will be devoted to addresses and discussions by well-known specialists from North America, South America and Europe.

Detailed information may be obtained from headquarters of the Congress at 161 East Erie Street, Chicago 11, Illinois.

AMERICAN ACADEMY OF NEUROLOGY

The American Academy of Neurology will hold its first interim meeting in Cincinnati on April 14 and 15, 1950. The meeting this year is being held in conjunction with the American Chapter of the International League Against Epilepsy which is meeting on April 15 and 16. On April 15 there will be a joint meeting between the two societies and a large symposium on psychomotor epilepsy.

AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS

The American Association of Industrial Physicians and Surgeons, with the allied groups comprising the American Conference of Governmental Industrial Hygienists, the American Industrial Hygiene Association, the American Association of Industrial Dentists and the American Association of Industrial Nurses, Inc., will hold its thirty-fifth annual meeting in Hotel Sherman, Chicago, from April 22 to 29.

The extension program consists of addresses, clinics, and panel sessions covering a great variety of problems encountered in industrial medicine. A number of industries in the Chicago area will arrange to have their medical departments and plants open during the week to those attending the conference.

AMERICAN CONGRESS OF PHYSICAL MEDICINE

The American Congress of Physical Medicine will hold its twenty-eighth annual scientific and clinical session, August 28, 29, 30, 31 and September 1, inclusive, at the Hotel Statler, Boston, Massachusetts. Scientific and clinical sessions will be given on the days of August 28, 29, 30, 31 and September 1. All sessions will be open to members of the medical profession in good standing with the American Medical Association. In addition to the scientific sessions, the annual instruction seminars will be held August 28, 29, 30 and 31. These seminars will be offered in two groups. One set of ten lectures will consist of basic subjects and attendance will be limited to physicians. One set of ten lectures will be more general in character and will be open to physicians as well as to therapists, who are registered with the American Registry of Physical Therapy Technicians or the American Occupational Therapy Association. Full information may be obtained by writing to the American Congress of Physical Medicine, 30 North Michigan Avenue, Chicago 2, Illinois.

AMERICAN BOARD OF OPHTHALMOLOGY

Candidates for the certificate of the American Board of Ophthalmology are accepted for examination on the evidence of a written qualifying test, held annually in various parts of the United States. Applications are now being accepted for the 1951 written test, and they will be considered in order of receipt until the quota is filled.

Practical examinations for acceptable candidates of 1950 will be held in Boston on May 22 to 26, in Chicago on October 2 to 6, and on the West Coast in January, 1951.

A new directory of all diplomates to date, arranged alphabetically and geographically, will be published early in 1950. No biographical material will be included.

Diplomates are urged to keep the Board office informed of all changes of address.

AMERICAN PHYSICIANS ART ASSOCIATION

The American Physicians Art Association will have its twelfth art exhibition in conjunction with the American Medical Association Convention at San Francisco Auditorium, June 26 to 30.

Any physician who follows the hobby of fine or applied arts can exhibit at this convention by becoming a member of the A.P.A.A. and applying for entry blanks and shipping labels of the secretary, F. H. Redewill, M.D., 526 Flood Bldg., San Francisco 2, Calif.

Over one hundred trophies will be awarded to advanced physician artists (A) as well as to beginners (B—who have done art work less than two years), the main purpose of the Association being to encourage all physicians to take up art in some form as an avocation.

Those physicians who have never done any painting, photography, sculpture, wood or metal craft, et cetera, can, without obligation, learn how to become creditable amateurs by writing to the secretary.

The American Physicians Art Association with its 4,000 members is recognized as having the finest amateur art shows in the world during the A.M.A. conventions, and the Association is desirous of having every physician who does art work to participate.

AMERICAN COLLEGE OF CHEST PHYSICIANS

The First International Congress on Diseases of the Chest will be held at the Carlo Forlanini Institute, Rome, Italy, September 17 to 20, under the auspices of the Council on International Affairs of the American College of Chest Physicians and the Carlo Forlanini Institute, with the patronage of the High Commissioner of Hygiene and Health, Italy, in collaboration with the National Institute of Health and the Italian Federation Against Tuberculosis.

Physicians who are interested in attending the Congress should communicate at once with Dr. Chevalier L. Jackson, chairman of the Council on International Affairs, American College of Chest Physicians, 500

(Continued on Page 286)

Etched by G.C.
London Pub. June 5th 1826 by G Humphrey 24 St James's Street
To Calais

The Bettman Archive

The nausea, vomiting and dizziness of motion sickness may be prevented or relieved, in a high percentage of cases, with Dramamine* (brand of dimenhydrinate).

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RESEARCH IN THE SERVICE OF MEDICINE **SEARLE**

AMERICAN COLLEGE OF CHEST PHYSICIANS

(Continued from Page 284)

North Dearborn Street, Chicago 10, Illinois, U. S. A., or with Professor A. Omodei Zorini, Carlo Forlanini Institute, Rome, Italy.

NATIONAL GASTROENTEROLOGICAL ASSOCIATION 1950 AWARD CONTEST

The National Gastroenterological Association again takes pleasure in announcing its Annual Cash Prize Award Contest for 1950. One hundred dollars and a certificate of merit will be given for the best unpublished contribution on gastroenterology or allied subjects. Certificates will also be awarded those physicians whose contributions are deemed worthy.

Contestants residing in the United States must be members of the American Medical Association. Those residing in foreign countries must be members of a similar organization in their own country. The winning contribution will be selected by a board of impartial judges and the award is to be made at the Annual Convention Banquet of the National Gastroenterological Association in October of 1950.

Certificates awarded to other physicians will be mailed to them. The decision of the judges will be final. The Association reserves the exclusive right of publishing the winning contribution, and those receiving certificates of merit, in its official publication, *The Review of Gastroenterology*.

All entries for the 1950 prize should be limited to 5,000 words, be typewritten in English, prepared in manuscript form, submitted in five copies accompanied by an entry letter, and must be received not later than June 1. Entries should be addressed to the National Gastroenterological Association, 1819 Broadway, New York 23, N. Y.

CONTINUATION COURSES

Dermatology.—The University of Minnesota announces a continuation course in dermatology for doctors of medicine who are engaged in general practice. Throughout the course, emphasis will be placed on the diagnosis and management of common skin disorders. Presentations which will be of special interest include the psychosomatic aspects of skin disorders and a clinic on dermatological problems to be presented in University Hospitals.

A special feature at the close of the course will be a conference on diagnostic problems which will challenge the diagnostic ability of the registered physicians. The faculty for the course will be made up of clinical and full-time members of the staff of the University of Minnesota Medical School and Mayo Foundation.

This course will be presented at the Center for Continuation Study on March 27 to 29.

Gynecology.—The University of Minnesota announces a continuation course in gynecology for doctors of medicine engaged in private practice. The course will be presented at the Center for Continuation Study on April 17 to 19. Among the subjects to be considered are uterine bleeding, inflammation of the cervix uteri, urinary incontinence, and lesions of the vulva.

Cardiovascular Disease.—The Center for Continuation Study announces a continuation course in cardiovascular diseases for general physicians on April 20 to 22. The course is sponsored by the Minnesota Heart Association, the Minnesota State Medical Association, and the Minnesota Department of Health. A limited number of Minnesota physicians will attend as guests of the Minnesota Department of Health. It is hoped that this course will accommodate the large number of physicians who could not be accepted for a similar course which was given in January.

Otolaryngology.—The University of Minnesota announces the seventh biennial continuation course in otolaryngology, to be held June 26 to 30. This course is designed to bring to the practicing otolaryngologist the newer concepts and developments in the specialty. The course will be under the direction of Dr. Lawrence R. Boies and associates of the University Medical School. Dr. Fred A. Figi, Dr. Henry L. Williams and others of the Graduate School faculty will participate in the instruction. Guest lecturers will include Dr. Percy Ireland, Toronto; Dr. LeRoy Schall, Boston; Dr. Philip Meltzer, Boston; and Dr. John Shea, Memphis.

The fee for this course is $50. The enrollment is limited. Application should be made at an early date to the Director, Center for Continuation Study, University of Minnesota, Minneapolis 14, Minnesota.

BLUE EARTH VALLEY SOCIETY

Approximately thirty-five physicians from Faribault and Martin Counties attended a meeting of the Blue Earth Valley Medical Society in Fairmont on January 12. The principal feature of the program was a discussion of bone surgery by Dr. Maynard Nelson, Dr. Daniel Moos and Dr. Earl C. Henrikson, all of Minneapolis.

MC LEOD COUNTY SOCIETY

Election of officers highlighted the monthly meeting of the McLeod County Medical Society in Hutchinson on January 19. Dr. Arthur Neumaier, Glencoe, was elected president of the organization, and Dr. L. L. Kallestad, Brownton, was named secretary-treasurer.

WASHINGTON COUNTY SOCIETY

The regular monthly meeting of the Washington County Medical Society was held February 4. Forms submitted by the Washington County Welfare Board were discussed, and it was decided to communicate with the state medical association and other county societies regarding them.

Dr. Manley F. Juergens was elected to membership on transfer from the Red River Valley Medical Society. He formerly practiced at Thief River Falls.

A technicolor motion picture on pentothal sodium in obstetrics was presented at the meeting and met with enthusiastic approval.

Announcing . . .

The First
NEUROLOGIC CENTER FOR CIVILIANS
in the Northwest

Governor Luther Youngdahl formally opened and dedicated our neurologic center and opened the doors to the public on February 12, 1950, thereby offering the following new services:

1) treatment of the hemiplegic patient
2) multiple sclerosis
3) retraining of speech disorders
4) paraplegia and other paralyses
5) ataxias

Qualified neurologists and neurosurgeons staff this center. The staff also includes qualified personnel who have been trained in special therapy, occupational therapy, corrective therapy and physical therapy.

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PUBLIC RELATIONS WOMAN LAUDS AUXILIARY WORK

More than half of the women in the Auxilary to the American Medical Association crusade actively on behalf of the National Education Campaign, according to Mrs. Paul C. Craig, Reading, Pennsylvania, National Auxiliary public relations chairman. Mrs. Craig spoke at the second annual conference of the National Education campaign of the American Medical Association in Chicago on February 12.

Mrs. Craig pointed out that the Auxiliary in no sense wants to go out doing things on its own, but wants to co-operate with the medical society of which it is an active part. "The Auxiliary appreciates recognition and the accompanying responsibility," she said.

The Auxiliary is now twenty-eight years old and has approximately 50,000 members, Mrs. Craig continued, pledging the women in the organization to continued furthering of the educational campaign of the AMA.

Mrs. Craig, wife of a Reading, Pennsylvania, ophthalmologist, has been associated with the national and the Pennsylvania auxiliary for many years. She became vice president of the Pennsylvania auxiliary in 1946 and then served as president during 1948-49. She is a member of the American Dietitic association and the Daughters of the American Revolution.

Liaison Officer Named

Following Mrs. Craig's talk, it was announced that Dr. Ernest B. Howard, assistant secretary of the AMA, had been named liasion man between the Auxiliary and the Board of Trustees. The announcement was made by Dr. Elmer L. Henderson, president-elect of the AMA and chairman of the Campaign Co-ordinating Committee.

NEW CAMPAIGN MATERIALS NOW AVAILABLE

Continuing efforts in the campaign against compulsory health insurance, which the Auxiliary has actively aided, will be bolstered by the availability of several new pamphlets and the revision of two standard ones.

The new ones include two by Harold E. Stassen, president of Pennsylvania university, entitled "Never! Never! Never!" and "Granny Is Gone!"

The first pamphlet in the series, based on Stassen's study of the British national health scheme, takes its dramatic title from one doctor's simple warning: "Please tell our friends in America never, never, never adopt such a program!"

The second is the story of Granny, a sixty-two-year-old woman who couldn't get a hospital bed and subsequently died of pneumonia. Stassen offers this case as a sample of what is happening in Britain today. He concludes: ". . . apprehension was later revealed by a London doctor. He told me emphatically: 'I believe this system is in to stay. I therefore have nothing whatever to say for it or against it.' "

"He was afraid to speak out. But the story of Granny and thousands of her countrymen—and the facts of the operation of the system—speak clearly for him."

Another new pamphlet, entitled "Nationalized Medicine and the Welfare State," connects compulsory health insurance with socialism, by pointing out that socialism is approached by way of the welfare state "in which the early emphasis is on measures for increasing physical comfort including provision for medical care." It warns that Americans are on the way and should rise to defend individual democracy: "When the American citizen learns that the regimentation of war, to which he willingly acquiesced as a patriotic duty, is to be renewed and extended in peace-time by a compulsory tax to pay for something he does not want, he will assert his own right to choose his doctor and his medical service."

Also available is a reprinted address, "Socialized Medicine," given by Louis H. Bauer, chairman of the Board of Trustees of the AMA, which gives a down-to-earth analysis of the compulsory health insurance situation and what it would mean. Through definition and explanation, Dr. Bauer compares the British system with the proposed compulsory health insurance bill and concludes that it is necessary to get back to the philosophy of Lincoln in his famous remark, "government of the people, by the people, for the people."

"The Doctor Brushed Off Utopia" by Henry La Cossitt, tells the story of a British doctor who argues the case against socialized medicine. Disgusted with red tape and the impossibility of giving *good* medical care to his forty to fifty patients a day, he left England, to practice medicine in America. It is the first-hand story of a doctor swamped by too many patients and too many forms.

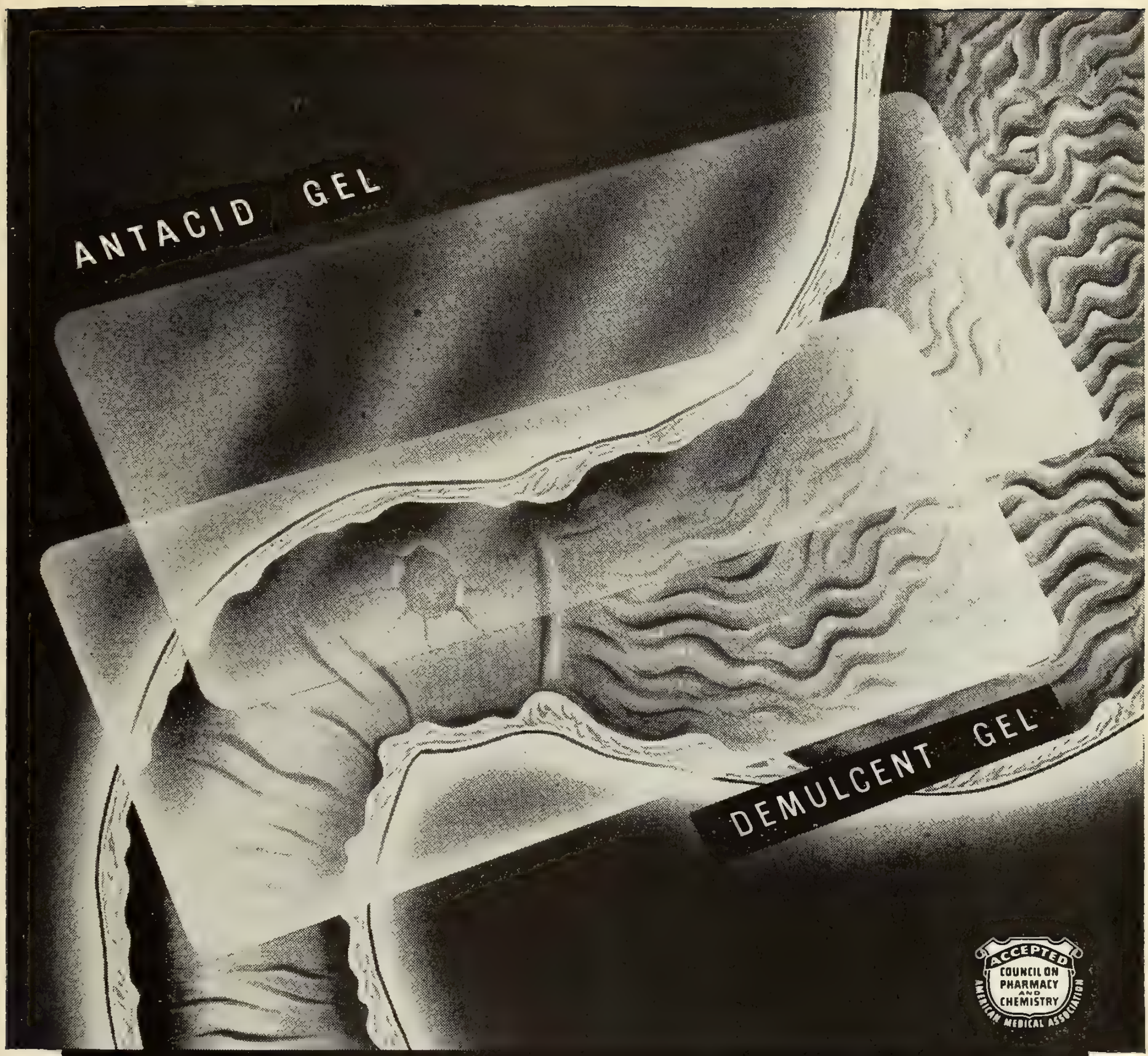
A new pamphlet for distribution by druggists, called "Profit or Freedom?" emphasizes the druggists' part in the fight for the voluntary way of obtaining health insurance.

The twelve-point program for the advancement of medicine and public health, developed by the AMA, is also available in pamphlet form. It gives a statement and explanation of each point, together with supporting statistics.

Revision means improvement in two pamphlets of standard use. The first, "The Voluntary Way is the American Way," has a new cover and is revamped to let appearance aid in the fight. It answers forty questions, instead of the previous fifty, on "health insurance—compulsory or voluntary." The second, "The Doctor," changes somewhat in content, making better and more convincing use of facts and figures.

Any of these publications may be obtained by writing to the office of the Minnesota State Medical Association.

(Continued on Page 290)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(Continued from Page 288)

ANNUAL MEETING COMMITTEE HEADS NAMED

Mrs. S. N. Litman
St. Louis County Medical Society

Mrs. Anthony J. Bianco and Mrs. Kenneth W. Teich were appointed by Mrs. John K. Butler, president of the Women's Auxiliary to St. Louis County Medical Society, as chairman and co-chairman for the Minnesota State Auxiliary annual meeting. The meeting will be in Duluth on June 12, 13 and 14.

Dr. F. J. Elias, president of the Minnesota State Medical Association, addressed the St. Louis County Medical Society auxiliary at the second session of the study class held February 14.

AUXILIARY HELPS HOSPITAL WORK

Mrs. Byron B. Cochrane
Goodhue County Medical Society

Members of the Auxiliary to the Goodhue County Medical Society have been helping to refurnish a room for pediatric cases in a local hospital. Members donated toys and have made stuffed toys at monthly meetings. Future plans include supplying children's furniture for the room.

Another new project was a plan to visit older patients in the hospital. Each member was made responsible for one old person and plans to visit him on his birthday and provide refreshments.

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In Memoriam

CHARLES WILLIAM CUTLER

Dr. Charles W. Cutler of Park Rapids, Minnesota, died on November 3, 1949, at the age of ninety-one, following fracture of the hip. Dr. Cutler was a graduate of Rush Medical College of the class of 1880. He served as county commissioner and village health officer and was a director of the State Bank of Park Rapids.

JOHN ESSER

Dr. John Esser of Perham, Minnesota, died January 26, 1950, at the age of sixty-six.

Dr. Esser was born in St. Cloud, Wisconsin, June 10, 1883. He graduated from the high school in Austin, Minnesota, in 1902 and from the medical school of the University of Minnesota in 1908. His internship was served at Bethesda Hospital, Saint Paul.

He was most active in local affairs, having been mayor of Perham for four years, president of the Chamber of Commerce in 1925, a member of the State Board of Health, chairman of the Board of Health at Perham and on the county Board of Health for six years.

Dr. Esser was a member of the Park Region District and County Medical Society, the Minnesota State Medical Association and American Medical Association.

In 1909, Dr. Esser married Lucy Belle Wallace. Mrs. Esser and an adopted son, John, survive him. His brother, Dr. J. C. Esser of Seattle, and sister, Mrs. Lina Johnson of Blooming Prairie, also survive him.

JOHN CHARNLEY McKINLEY

Dr. J. C. McKinley, formerly professor of neuropsychiatry and head of the Department of Medicine at the University of Minnesota Medical School, died following an illness of four and one-half years, on January 3, 1950.

Dr. McKinley was born in Duluth, Minnesota, on November 8, 1891. His primary schooling was obtained in Duluth public schools, following which he attended Central High School in Duluth, West High School in Minneapolis and the Horace Mann High School in New York City.

He attended the University of Minnesota where he obtained his B.S. degree in 1915, and later M.A. in Anatomy, his thesis subject being "Myology of the Newborn Infant." He received his M.D. degree at the University of Minnesota in 1919 and Ph.D. in Neuropsychiatry in 1921, his thesis subject being "The Intraneural Plexus of Fasciculi and Fibers in the Sciatic Nerve."

Dr. McKinley held the following appointments at the University of Minnesota during his academic career:

Student Assistant in Anatomy—1915-1917
Instructor in Pathology—1917-1918
Teaching Fellow in Neuropsychiatry—1918-1921
Associate Professor of Neuropathology—1921-1925
Associate Professor of Neurology—1925-1929
Professor of Neuropsychiatry—1925-1945
Acting Head of the entire Department of Medicine—1932-1943
Head of the Department of Neuropsychiatry and Director of the Psychopathic Unit at the University of Minnesota Hospitals—1943-1945
Professor Emeritus of Psychiatry and Neurology at the University of Minnesota—1946 until the time of his death.

In 1928 Dr. McKinley received a John Simon Guggenheim Fellowship and studied in Europe at Breslau and Munich.

Dr. McKinley held many very important positions in organizations in his special field. He was a member of the Board of Directors of the American Board of Psychiatry and Neurology from 1941-1945. He was chairman of the Committee on Nervous and Mental Diseases of the Minnesota State Medical Association from 1943-1945. He was president of the Minnesota Pathological Society from 1946 to 1947, and president of the Central Neuropsychiatric Association in 1939.

Dr. McKinley was a member of many societies, among which were the Minnesota Society of Psychiatry and Neurology, the Minnesota Academy of Medicine, the Central Clinical Research Club, the Central Neuropsychiatric Association, and the American Neurological Association. He was also a Fellow of the American Association for the Advancement of Science, the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association.

He was a member of a number of honor societies, including Alpha Omega Alpha and Sigma Xi.

Dr. McKinley, during his career, published a large number of scientific articles. He was editor of the *Outlines of Neuropsychiatry* and co-author with Dr. S. R. Hathaway of the Minnesota Multiphasic Personality Inventory. He was listed in Who's Who in America, Who's Who in American Men of Science, Who's Important in Medicine, Biographical Encyclopedia of the World, Who's Who in American Education, and Who's Who in Minnesota.

CHARLES LEROY RODGERS

Dr. Charles L. Rodgers, for the past seven years medical officer at the Minnesota Soldiers' Home, Minneapolis, died on December 15, 1949, at the age of sixty-seven.

Dr. Rodgers was born February 15, 1882, at Farmington, Minnesota. He graduated from the University of Minnesota medical school in 1907. He is survived by his wife, Frances; two brothers, Walter S. and James, both of Minneapolis, and a sister, Nancy, also living in Minneapolis.

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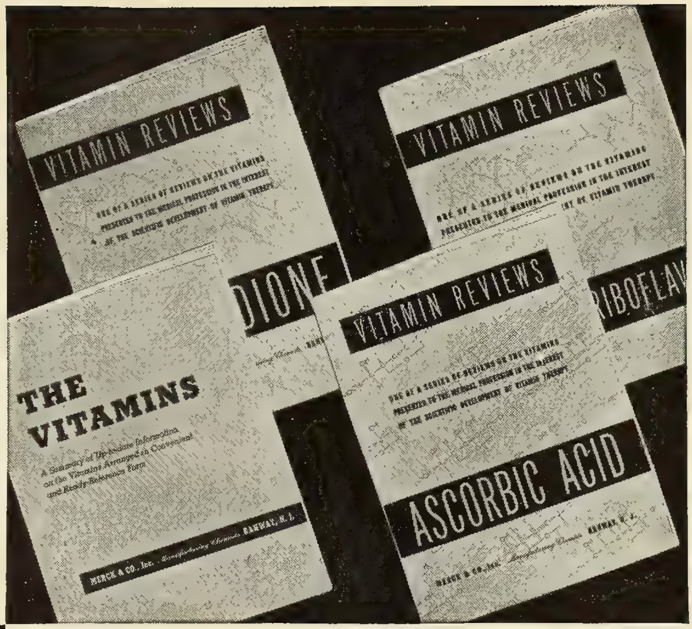
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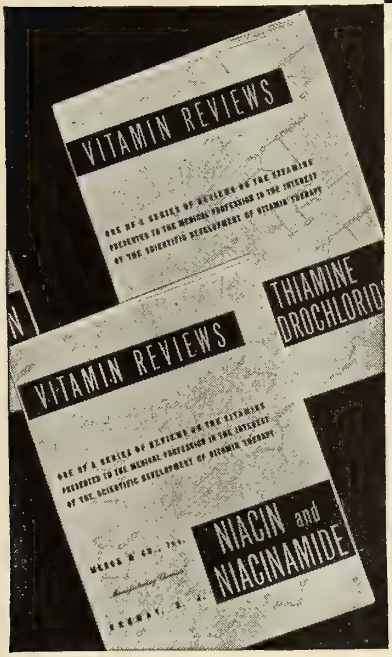
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- → **Signs and symptoms of deficiency.**
- → **Daily requirements and dosages.**
- → **Distribution in foods.**
- → **Methods of administration.**
- → **Clinical use in specific conditions.**

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Of General Interest

Dr. Paul R. Hawley has resigned his position as chief executive officer of the Blue Cross and Blue Shield Commissions to become the director of the American College of Surgeons. The change became effective on March 1. Dr. Hawley is retaining the presidency of the Blue Cross's Health Service, Inc., which was charted in Illinois in November as a national insurance company designed to offer uniform benefits to employes of large industrial organizations operating in the areas of several of the Blue Cross plans.

* * *

Dr. Stanley W. Olson, assistant director of the Mayo Foundation at Rochester, has been named dean of the College of Medicine at the University of Illinois.

* * *

At a meeting of the American College of Allergists in St. Louis on January 15 to 18, **Dr. Albert V. Stoesser,** Minneapolis, was elected to the newly created position of assistant secretary-treasurer. He was also appointed chairman of the Program Committee for the next meeting of the College, which will be held in Chicago in February, 1951.

* * *

Dr. Edward B. Kinports, International Falls, showed slides on thoracic surgery at a meeting of the Border Registered Nurses Club in International Falls on January 23.

* * *

On January 25, **Dr. Albert C. Martin** officially began medical practice in Luverne when he opened offices in the Pengra Building. A graduate of the University of Illinois College of Medicine, Dr. Martin has been engaged in private practice near Chicago for the past three years.

* * *

Representative Martin of Massachusetts recently submitted figures to the House Ways and Means Committee showing that in 1946 **grants-in-aid to the states** amounted to $645,000,000. This was quite a sizeable sum. In 1948, however, it was $1,418,000,000. This was also quite a sizeable sum. We haven't as yet the figures for 1949. Included in the total were: $39,252,000 for public health, $21,409,000 for maternal and child health and welfare, $573,304,000 for old age assistance, $141,738,000 for aid to dependent children, and $16,947,000 for aid to the blind. We paid this enormous amount in taxes, paid U. S. government employes to collect and pay it back to the different states to supplement funds raised by voluntary subscription and state taxes. Let it be clearly understood—there is nothing free about these grants-in-aid.

* * *

Dr. C. L. Sherman, Luverne, has been appointed coroner and county health officer of Rock County. He succeeds Dr. J. S. Burleigh, who resigned to join the staff of the Minneapolis Veterans Hospital.

* * *

Announcement has been made of the engagement of Miss Olive Constance Hurlock of Oakland, California, to **Dr. Harry Ogden,** son of Dr. and Mrs. Warner Ogden of Saint Paul. Both are stationed at the U. S. Naval Hospital at Bremerton, Washington. The wedding is planned for early April in San Francisco.

* * *

Dr. Vincent Ryding, who has practiced at Howard Lake for the past four years, has accepted a surgical residency at the Methodist Hospital, Dallas, Texas. The hospital is affiliated with the Southwest Medical University at Dallas. Dr. Ryding will begin his new duties on July 1.

* * *

Dr. J. T. Holcomb of Marine-on-St. Croix has been spending the winter in Phoenix, Arizona.

* * *

The Minnesota branch of the American Medical Women's Association held a dinner meeting at the Colony Restaurant, Minneapolis, on January 28. Following a business session, **Dr. Nora Winther** showed motion pictures of her European trip. Eighteen members were in attendance, all from the Twin Cities.

* * *

Announcement has been made of the existence of **vacancies for full-time physicians** in the Veterans Administration Regional Office in San Antonio, Texas. The announcement was made by Dr. A. S. Brussell, a graduate of the University of Minnesota in 1933, now chief medical officer of the San Antonio VA office.

Salary range for these positions is $6,400 to $11 000 a year, with liberal annual and sick leave and retirement privileges. Qualified candidates for the positions can apply to Dr. Brussell at the regional office, 307 Dyer Avenue, San Antonio, Texas.

* * *

Dr. Lloyd Nelson, Minneapolis, spoke on the subject of respiratory allergy in children at a meeting of the Stearns-Benton County Medical Society in St. Cloud on February 16. Dr. Nelson is associated in practice with Dr. Albert V. Stoesser.

* * *

Northfield acquired a new physician when **Dr. J. Richard Utne** moved there on February 1 to become associated in practice with Dr. S. T. Kucera. A graduate of the University of Illinois College of Medicine in 1948, Dr. Utne served his internship at Minneapolis General Hospital. He recently completed seven months of practice in Minneapolis.

(Continued on Page 296)

Not just milk replacement but casein replacement...

Casein—and also lactalbumin—are frequently the cause of hypersensitiveness to cow's milk. This hypersensitiveness can be manifested by gastrointestinal upsets followed in time by eczema of a mild or acute nature. In such cases cow's milk of all types must be eliminated from the diet. Mull-Soy is the near equivalent for milk to be used in these cases.

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(Continued from Page 294)

"Socialized Medicine" was the title of a talk given by **Dr. Martin O. Wallace,** Duluth, at a meeting of Duluth Scottish Rite groups on February 9.

* * *

Approximately 1,200 New Ulm school children, as well as some from surrounding rural schools, received inoculations against diphtheria and tetanus at special clinics on January 25. The clinics, which were conducted through the co-operation of all New Ulm physicians, were under the direction of **Dr. C. A. Saffert,** city health officer.

* * *

Dr. Paul Nyberg, formerly of Latvia and now on the staff of Bethesda Hospital, Saint Paul, was the principal speaker at a meeting of the Auxiliary to the Ramsey County Medical Society in Saint Paul on January 23. The title of his talk was "Practicing Medicine Under Nazi Regime."

* * *

After two years of practice in Detroit Lakes, **Dr. Gerald E. Bourget** left on February 1 to open offices for the practice of medicine in Hudson, Wisconsin. In Detroit Lakes he was associated with Dr. L. H. Rutledge.

* * *

Dr. D. P. Bernard has announced the opening of offices for the practice of medicine at 3400 Dakota Avenue, St. Louis Park (Minneapolis suburb). A graduate of Marquette University Medical School, Dr. Bernard interned at Minneapolis General Hospital, then served in the Army for three and one-half years during the war. For a time he was associated in practice with Dr. Alton C. Olson at the Nicollet-Lake Medical Clinic, Minneapolis.

* * *

The Saint Paul Archdiocesan Council of Catholic Nurses has organized the **Our Lady of Sorrow Nursing Guild,** the purpose of which is to provide volunteer nursing care for critically ill, hospitalized patients of any color or creed who would otherwise be unable to afford such care. The designation of patients to be the recipients of such free nursing care is to be by the attending physician and the head nurse on the floor. The plan has been instituted in certain Saint Paul hospitals.

* * *

Dr. Nelson Bradley, clinical director at the Hastings State Mental Hospital for the past two years, has been chosen superintendent of the hospital to replace Dr. Ralph Rossen. Dr. Bradley assumed his new office on February 1.

A graduate of the University of Alberta, Canada, Dr. Bradley took postgraduate work at the University of Minnesota. In 1943 he joined the Canadian Army Medical Corps and did psychiatric work in England. He was released from the army in 1946.

* * *

At a meeting of the Democratic-Farmer-Labor women of Minneapolis on February 4, **Dr. Frederic J. Kottke,** associate professor of physical medicine at the University of Minnesota, spoke on health legislation facing the 81st Congress.

* * *

Dr. W. L. Benedict, Rochester, was honored at a coffee party given on February 1 by members of the Worrall Hospital ophthalmology staff. He was presented with an album depicting his work in the hospital.

* * *

At a meeting of the **Saint Paul Surgical Society** on January 25, Dr. John J. Culligan was elected president of the organization. Dr. Victor Hauser was named vice president, and Dr. William F. Hartfiel, secretary-treasurer. Principal speaker at the meeting was Dr. George T. Pack, attending surgeon of the Memorial Cancer Center, New York City, and clinical professor of surgery at New York Medical College.

* * *

Dr. Robert J. Brimi has joined the medical staff of the Richards Clinic in St. Cloud. A graduate of the University of Minnesota Medical School in 1944, Dr. Brimi served his internship and a residency in pathology at the Wayne County General Hospital, Detroit, Michigan. After serving for two years in the Army, he spent two years as a medical fellow at the University of Minnesota. He specializes in the field of internal medicine.

* * *

On February 1, **Dr. William O. Finkelnburg,** a former resident of Winona, returned to Winona to become associated in practice with Dr. Irving W. Steiner. A graduate of the University of Minnesota Medical School in 1941, Dr. Finkelnburg interned at Ancker Hospital, Saint Paul. After serving in the the Army for three years, he began a residency in surgery at Ancker Hospital in 1946 and completed it in January, 1949. During the past year he was associated in practice with Dr. Stanley R. Maxeiner, Minneapolis.

* * *

Dr. Frederick W. Wittich, Minneapolis, was re-elected secretary-treasurer of the American College of Allergists at its meeting in St. Louis, Missouri, January 15 to 18.

* * *

It was announced on January 22 that the library of the St. Louis County Medical Society would be incorporated as the **David L. Tilderquist Memorial Library,** to pay tribute to the late Dr. Tilderquist, Duluth ophthalmologist and otolaryngologist. Dr. Tilderquist, who died on September 26, 1948, has been described as having been the library's "best friend and most avid patron." Naming the library after him is the result of a study to find a suitable memorial to the physician whose professional efforts set an enduring example for his colleagues.

The memorial corporation, which will be separate from the medical society, will have its own board of directors and governing regulations. At present the library has nearly 3,000 bound volumes including texts and periodicals, and receives 105 weekly, monthly and quarterly periodicals on medicine.

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Dr. E. P. Strathern, retired St. Peter physician, vas honored at the annual meeting of the St. Peter Civic and Commerce Association on January 18. The eighty-one-year-old physician completed fifty ears of medical practice in St. Peter last December. Nearly 100 businessmen attended the honor meeting t which Dr. Strathern received an original painted archment scroll, a lifetime membership in the organization.

* * *

Announcement was made on January 24 that **Dr. Russell H. Frost,** director of tuberculosis work in ten Midwestern states for the Veterans Administration, had been named superintendent of the Glen Lake Sanatorium. The appointment, which became effective on March 1, ended a six-month search for a successor to Dr. Ernest S. Mariette, who resigned because of ill health after thirty-three years as superintendent.

A graduate of the University of Minnesota Medical School, Dr. Frost has had experience as a physician, as a sanatorium administrator, and as a member of the Navy medical corps in World War II. At the time of his appointment to the Glen Lake post, he was stationed at Fort Snelling as chief of the tuberculosis service at the area medical office and acting attendant physician on the staff.

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Farewell ceremonies were held in Winsted on January 22 for **Dr. Edwin E. Shrader,** who was retiring from active practice and moving to Watertown to live. More than 400 persons gathered at the high school auditorium to say goodbye to Dr. Shrader and to present him with gifts. Dr. Shrader, now eighty-seven years of age, began his medical practice in Watertown in 1893.

* * *

Dr. John R. Earl, Saint Paul physician, was elected president of the Minnesota Council of Churches at its annual meeting in Saint Paul on January 19.

* * *

The **Lakeland Medical Center** has been completed in Willmar by five physicians. They are Dr. Robert J. Hodapp, Dr. Robert V. Hodapp, Dr. Douglas L. Jacobs, Dr. Lloyd C. Gilman and Dr. Ray K. Proeschel. The newly constructed building, costing $200,000, houses offices, laboratories and x-ray facilities. Dimensions of the structure are 120 by 42 feet, with two floors, the second floor housing eight residential apartments.

* * *

Dr. Benjamin Spock, staff member of the Child Health Institute in Rochester, was a speaker at the annual meeting of the Family and Children's Service in Minneapolis on January 25. Title of his talk was "What Is Discipline for Children?"

* * *

January 18 marked the ninety-fourth birthday of **Dr. George Haggard** of Minneapolis, Minnesota's oldest active physician. Though Dr. Haggard no longer goes out on calls, he still sees some patients at his office-home. He began practice in 1893.

* * *

The marriage of Miss Mary Kay Simon, of New Prague, and **Dr. Donald L. Alcott,** formerly of Watertown, South Dakota, took place at New Prague on January 7. The bride was a nurse at St. Mary's Hospital, Rochester. Dr. Alcott, a graduate of Rush University, is a fellow of the Mayo Foundation.

* * *

At the annual meeting of the **Waseca County Medical Society,** held in Janesville on January 11, Dr. R. D. Davis was elected president of the organization. Dr. S. C. G. Oeljen was named vice president, and Dr. William B. Gallagher, secretary-treasurer. All three are from Waseca.

* * *

Dr. Byron H. McLaughlin, who recently completed a three-year fellowship at the Mayo Clinic, Rochester, announces his association with Dr. Stanley R. Maxeiner at 1653 Medical Arts Building, Minneapolis.

* * *

Dr. Kendall B. Corbin, consultant in neurology in the Mayo Clinic and professor of neurosurgery in the Mayo Foundation, has been appointed associate director of the Foundation by the Board of Regents of the University of Minnesota, it was announced on January 13.

In his new post Dr. Corbin shares administrative luties with Dr. Victor Johnson, director of the Foundation.

Dr. Corbin became a member of the department of eurology and psychiatry at the Mayo Clinic in July, 1946. Before that he had been an instructor in natomy at Stanford University and professor of natomy at the University of Tennessee. He was lso chairman of the department of anatomy and upervisor of the department of clinical neurology. He received his medical degree at Stanford in 1935.

* * *

More than 2,000 students in the Edina-Morningside chool system received **eye examinations** in January hrough a survey sponsored by the Edina-Morningside Parent-Teachers Association. The survey was onducted by the Minnesota Society for the Prevenion of Blindness, with the endorsement of the Hennepin County Medical Society.

* * *

Principal speaker at a regional meeting of the Jniversity of Minnesota Alumni Association in Virinia on February 13 was **Dr. William G. Kubicek,** ssociate professor of medicine at the University of Minnesota. The meeting gave special recognition to he medical school and honored all physicians in the rea who were graduates of it.

* * *

Two addresses were made in Duluth on February by **Dr. Frank H. Krusen,** professor of physical medicine in the Mayo Foundation and head of the section on physical medicine at the Mayo Clinic. He spoke on "Rehabilitation of the Handicapped" at a meeting of the Duluth Association for the Physically Handicapped and at a meeting of the St. Louis County Medical Society.

* * *

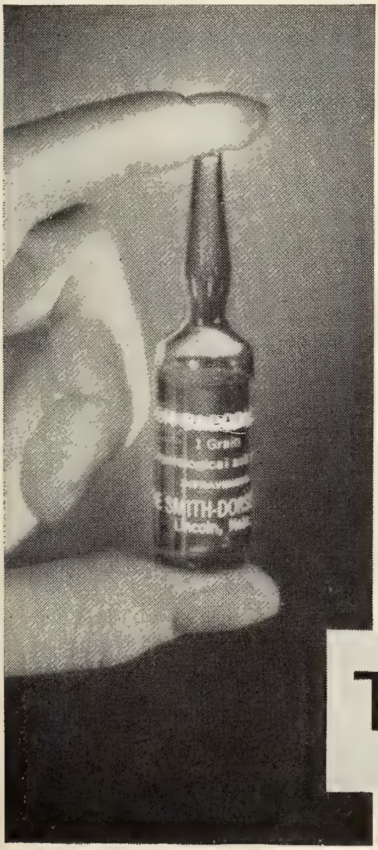
A dinner to honor **Dr. Ralph Rossen,** Minnesota's first mental health commissioner, was held at the Coffman Memorial Union on the University of Minnesota campus on February 2. Governor Luther W. Youngdahl presided at the dinner, which was attended by members of the medical profession, state officials, legislators, citizens groups that fought for the mental health program, and institutional and psychiatric workers concerned with the program. Dr. Ernest M. Hammes was chairman of the sponsoring committee of the affair.

* * *

Dr. Maurice B. Visscher, professor and head of the department of physiology at the University of Minnesota, has been elected to the board of directors of the National Society for Medical Research. The organization is currently emphasizing the importance of animal experimentation in medicine and has set as one of its goals improved methods for procurement and care of laboratory animals.

* * *

Aims and objectives of the **Hennepin County Medical Society** were explained by Thomas P. Cook,



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1. *Withering, W.:* An account of the Foxglove, London, 1785.
2. *Rimmerman, A. B.:* Digilanid and the Therapy of Congestive Heart Disease, Am. J. M. Sc. *209:* 33-41 (Jan.) 1945.

Literature giving further details about Digilanid and Physician's Trial Supply are available on request.

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---

executive secretary of the organization, at a meeting of the Rotary Club in Excelsior late in January.

* * *

Dr. Victor W. Doman and **Dr. John T. Rose** are now occupying a newly constructed clinic building in Lakefield. The modern structure contains offices, a treatment room, an x-ray and minor surgery room, a laboratory and a business office.

* * *

Dr. Donald C. Balfour, director emeritus of the Mayo Foundation, received the Builder of the Name award of the University of Minnesota at ceremonies held on February 16. The award was established in 1947 and is given in recognition of service to the University. Only three other persons have received the award.

Dr. Balfour, who served as director of the Mayo Foundation from 1937 to 1947, first joined the staff of the Mayo Clinic in 1907. He was named head of a section in the division of surgery in 1912 and later became head of the division. He was appointed professor of surgery in the Mayo Foundation in 1923 and was named associate director in 1935.

* * *

Among Minnesota physicians attending a continuation course in cardiovascular diseases, held at the University of Minnesota Center for Continuation Study on January 5 through 7, were Dr. G. Ruggles, Forest Lake; Dr. R. E. Billings, Franklin; Dr. William A. Owens, Montevideo; Dr. C. L. Roholt, Waverly; Dr. C. A. Anderson, Hector; and Dr. F. M. McCarten and Dr. Henry Van Meier, both of Stillwater.

* * *

Plans for construction of a $12,000,000 **ten-story clinic building** were announced on January 5 by Dr. Arlie R. Barnes, chairman of the Mayo Clinic board of directors.

Site of the proposed structure will be the block across the street from the present clinic, where the Mayo Foundation medical museum now stands. The new building will more than double the floor space of the present clinic buildings. It will be planned to handle 150,000 to 160,000 patient registrations a year, and it will have the structural strength to allow an additional eight stories, if necessary. Construction cost, estimated to be $12,000,000, will be paid entirely by the Mayo Association, a non-stock "charitable, benevolent and educational" corporation established by the Mayo brothers in 1919.

It was expected that ground-breaking for the structure will take place this year, perhaps in August. Completion of construction is expected within four years.

* * *

At a meeting of the Winona County Public Health Nursing Advisory Committee in Winona on January 17, **Dr. Viktor O. Wilson,** acting district health officer for the Minnesota Department of Health, outlined a plan for a joint county-city health department, as permitted by 1949 state legislation.

* * *

A ham radio operator and a Minneapolis physician collaborated on January 5 to diagnose and prescribe treatment for a child on a ship in the Atlantic Ocean 1,500 miles away.

Fred Kaefer, a St. Louis Park amateur radio operator, picked up an emergency call from the captain of the Flying Enterprise, a trading vessel 400 miles off the coast of New Jersey. A six-year-old child passenger was very sick, the captain said. Kaefer telephoned Northwestern Hospital in Minneapolis, reached **Dr. Cherry Cedarleaf,** a resident pediatrician, and let her talk to the captain. The captain described the symptoms and signs; the physician diagnosed acute tonsilitis and prescribed appropriate treatment. Fifteen hundred miles away, the captain followed the broadcast instructions.

A few hours later, the child—a German on his way to the United States with his parents—was apparently well on the road to recovery . . . thanks to a triple play in communications: ship captain to radio operator to physician.

* * *

Among Minnesota physicians attending a continuation course in neurology at the University of Minnesota early in February were two Crookston physicians, **Dr. Martin Janssen** of the Northwestern Clinic and **Dr. D. E. Pohl** of the Crookston Clinic.

* * *

Dr. Burril Crohn, of Mt. Sinai Hospital, New York, will deliver the annual Phi Delta Epsilon Lecture at the Museum of Natural History on the University of Minnesota campus at 8:00 p.m., April 20. His subject will be "Regional Iléitis."

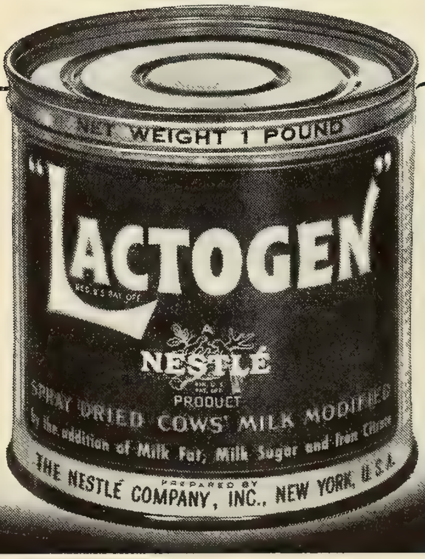
* * *

Duluth's longest practicing surgeon, **Dr. William R. Bagley** celebrated his eightieth birthday on January 15. A graduate of the University of Michigan Medical School, Dr. Bagley began his practice in Duluth in 1893, when he became associated with Dr. William H. Magie, a pioneer Duluth surgeon. By 1910 Dr. Bagley's strenuous night-and-day medical schedule had undermined his health so severely that he was forced to retire to Oregon for a long rest. After five years of unhurried ranch life, he returned to Duluth and his practice. Since then he has set aside a part of each year for a good vacation to reenforce his health.

A civic leader and an ardent supporter of conservation—he is an ex-state president of the Izaak Walton League—Dr. Bagley was chosen for Duluth's Hall of Fame in 1941, when the city paid tribute to him for his numerous contributions to state and city. Among his children are two physicians, Dr. Elizabeth C. Bagley and Dr. Charles W. Bagley, both Duluth practitioners, and the wife of a physician, Mrs. C. L. Oppegaard, of Crookston.

* * *

Dr. Thomas B. Magath, Rochester, has resigned from the State Board of Health after twelve years of service. He has been president of the board since 1946. Dr. Magath joined the Mayo Clinic in 1919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and is now chief of the division of clinical pathology. From 1941 to 1946 he served in the U. S. Navy and was released from service with the rank of commodore.

* * *

Dr. Abbott Skinner has opened an office at 714 Lowry Medical Arts Building, Saint Paul, for the practice of general surgery. Dr. Skinner was graduated from Harvard Medical School in 1942 and interned at Ancker Hospital, Saint Paul. After serving in the Army for three years, part of the time in the South Pacific, he took a residency in surgery at Ancker Hospital, which he has just completed. He received an M.S. degree in surgery at the University of Minnesota in June, 1949.

* * *

The **Co-operative Medical Advertising Bureau** of the American Medical Association, the agency which obtains most of the advertising for most of the state medical journals, has changed its name on the advice of its advisory committee and with the approval of the board of trustees of the AMA. The new name, State Journal Advertising Bureau of the American Medical Association, seemed more descriptive of the bureau's activities.

* * *

Dr. Joseph N. Gahlen and **Dr. Frank J. Milnar** announce their association for the practice of internal medicine, with offices at 714 Lowry Medical Arts Building, Saint Paul.

HOSPITAL NEWS

Following are the results of various hospital staff elections recently held in Minnesota.

St. Joseph's Hospital, Brainerd.—Dr. A. M. Mulligan, chief-of-staff; Dr. J. H. Bender, vice chief-of-staff; Dr. W. W. Anderson, secretary-treasurer.

Maternity Hospital, Minneapolis.—Dr. Ray F. Cochrane, president; Dr. Helen Haberer, secretary.

St. Andrews Hospital, Minneapolis.—Dr. Frank E. Mork, Anoka, chief-of-staff.

St. Mary's Hospital, Duluth.—Dr. K. R. Fawcett, chief-of-staff-elect; Dr. R. P. Buckley, chief-of-staff; Dr. A. C. Kelly, secretary.

St. Luke's Hospital, St. Paul.—Dr. Victor P. Hauser, chief-of-staff; Dr. C. W. Leverenz, secretary. Officers of the board of trustees: E. G. Carpenter, president; B. G. Griggs, first vice president; G. O. House, second vice president; William J. Gratz, secretary-treasurer. The hospital has been certified by the American College of Surgeons.

St. Barnabas Hospital, Minneapolis.—Dr. Arthur C. Kerkhof, chief-of-staff; Dr. L. A. Whitesell, vice chief-of-staff; Dr. Edgar A. Webb, secretary-treasurer. Executive committee: Dr. E. A. Arlander, Dr. C. M. Cabot, Dr. M. T. Mitchell, Dr. N. H. Lufkin, Dr. M. E. Knapp, Dr. A. V. Stoesser, Dr. C. W. del Plaine, Dr. E. J. Lillehei, Dr. W. E. Proffitt and Dr. H. H. Noran.

* * *

The **Preston Hospital** completed its sixth year of operation on January 24. During the six years 827

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babies were born in the hospital and 1,351 patients were admitted for care. The hospital, which was opened by Dr. J. P. Nehring in 1944, has been operating to full capacity since its start.

* * *

At a meeting of the medical staff of **Maternity Hospital,** Minneapolis, on January 17, Dr. Milton Abramson reported that the hospital had established what was believed to be a record in 6,845 consecutive maternity cases without a maternal death. The record ran between April, 1940, and August, 1947. During the past thirteen years there were only three maternal deaths in 13,009 cases—a rate of .023 per 1,000. The national average maternal mortality is 1.3 deaths per 1,000.

* * *

Plans for the proposed hospital at **Madison** have been changed to include a penthouse addition to furnish living quarters for twelve nurses and a superintendent. The one-story hospital, when completed, will have a normal capacity of thirty and a full capacity of forty-two beds. Cost of the project is $450,000. Of this amount, residents of the Madison area were asked to raise $150,000. When contributions and pledges were counted after a fund-raising campaign, the total was $177,369.

* * *

At the annual meeting of the **Oakland Park Sanatorium** commission, Dr. O. F. Mellby of Thief River Falls was re-elected president. Dr. Mellby has held the office for the past thirty years. Dr. Baldwin Borreson, superintendent of the sanatorium, is secretary of the commission.

BLUE CROSS-BLUE SHIELD NEWS

With 260,500 persons enrolled, Minnesota Blue Shield is the thirteenth in size of the sixty-seven Blue Shield Plans in the nation. This increase in enrollment during 1949 amounts to more than two and a half times the enrollment in 1948, and placed Minnesota Blue Shield as fifth in size of increased enrollment during the first nine months of 1949.

Nearly 31,000 claims were paid by Minnesota Blue Shield during 1949. Of the total number of claims, over 29,000 were submitted by participating Blue Shield doctors, who received $1,076,513.31 in Blue Shield payments for care given subscribers. Total payments to doctors during the year amounted to more than $1,156,230. Throughout the United States and Canada, Blue Shield Plans will have paid approximately $100,000,000 during 1949 for medical care to their thirteen million subscribers.

Hospital care to Minnesota Blue Cross subscribers during 1949 totaled $8,746,831, or 94.4 per cent of the year's income. This is 7.9 per cent more of earned income than was paid to hospitals for care of subscribers in 1948. Operating expenses during 1949 amounted to 10.8 per cent of the year's income, and is a decrease

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$15,000.00 accidental death..........$24.00
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from 1948 when operating expenses came to 11.2 per cent of the total income for the year.

More persons using hospital care, increased usage of certain hospital services, and higher hospital costs were chief reasons for the increased utilization in 1949. Hospitalization of persons protected under family contracts was the highest in Blue Cross history, and hospitalization under single subscriber contracts was the highest its been in the last five years. Combined, the increased utilization under single and family contracts resulted in a rate of 417 cases paid per thousand Blue Cross contracts compared with 374 per thousand contracts paid in 1948.

Respiratory illnesses were the chief cause for hospitalization during 1949, accident cases ranked second and maternity cases third. This is the first time since 1940 that accident cases exceeded the number of maternity cases paid. The rate of increase, however, in both accident and maternity cases was not as great as the rate of increase in 1948.

With 966,483 persons enrolled, Minnesota Blue Cross continues to maintain its position as ninth largest Blue Cross Plan in the United States. Throughout the United States and Canada over thirty-five million persons are enrolled in Blue Cross, and about $300,000,000 has been paid for subscribers' hospital care during 1949.

PRIMARY TUMORS OF THE OPTIC NERVE

(Continued from Page 243)

7. Martin, P., and Cushing, H.: Primary gliomas of the chiasm and optic nerves in their intracranial portion. Arch. Ophth., 52:209, 1923.
8. Stallard, H. B.: A case of endothelioma of the optic nerve sheaths. Brit. J. Ophth., 19:576-583, 1935.
9. Verhoeff, F. H.: Primary intraneural tumors (gliomas) of the optic nerve. Arch. Ophth., 51:120-140 and 239-254, 1922.
10. Verhoeff, F. H.: Tumors of the optic nerve. In Penfield, Wilder: Cytology and Cellular Pathology of the Nervous System. Vol. 3, p. 1029. New York: Paul B. Hoeber, Inc., 1932.
11. Walsh, F. B.: Clinical Neuro-Ophthalmology. Pp. 1133-1141. Baltimore: Williams and Wilkins Company, 1947.

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

BRUCELLOSIS (Undulant Fever). Second Edition. Harold J. Harris, M.D., F.A.C.P.; with assistance of Blanche L. Stevenson, R.N. Foreword by Walter M. Simpson, M.S., M.D., F.A.C.P. 618 pages. Illus. Price $10.00, cloth. New York: Paul B. Hoeber, Inc., 1950.

MEDICAL MANAGEMENT OF GASTROINTESTINAL DISORDERS. Garnett Cheney, M.D. Clinical Professor of Medicine, Stanford University Medical School. 478 pages. Illus. Price $6.75, cloth. Chicago: The Year Book Publishers, Inc., 1950.

QUINIDINE IN DISORDERS OF THE HEART. Harry Gold, M.D. Professor of Clinical Pharmacology at Cornell Medical College; Attending Physician-in-Charge of the Cardiovascular Research Unit at the Beth Israel Hospital; Attending Cardiologists at the Hospital for Joint Diseases; Managing Editor of the Cornell Conferences on Therapy. 115 pages. Price $2.00, cloth. New York: Paul B. Hoeber, Inc., 1950.

PRIMER OF ALLERGY. Third Edition. Warren T. Vaughan, M.S., M.D. 175 pages. Illus. Price $3.50. St. Louis: C. V. Mosby Co., 1950.

CARDIOVASCULAR DISEASE—Fundamentals, Differential Diagnosis, Prognosis and Treatment. Louis H. Sigler, M.D., F.A.C.P. Attending Cardiologist and Chief of Cardiac Clinic, Coney Island Hospital; Consulting Cardiologist, Rockaway Beach Hospital; Consulting Cardiologist, Menorah Home and Hospital for the Aged. 551 pages. Illus. Price $10.00, cloth. New York: Grune & Stratton, 1949.

THE PHYSIOLOGY OF THOUGHT. A Functional Study of the Human Mind in Action. Harold Bailey, M.D., F.A.C.S. 313 pages. Price $3.75, cloth. New York: William-Frederick Press, New York, 1949.

X-RAY TREATMENT, ITS ORIGIN, BIRTH AND EARLY HISTORY. Emil H. Grubbé, B.S., M.D., F.A.C.P., Charter Member and Emeritus Member of the Radiological Society of North America; Charter Member of the American Roentgen Ray Society; Diplomate of the American Board of Radiology; Associate Fellow of the American Medical Association; Emeritus Member of the Illinois State Medical Society, and a Member of the Chicago Medical Society. 153 pages. Illus. Price $3.00. Saint Paul: The Bruce Publishing Co., 1949.

This is the professional autobiography of a living pioneer of radiology, whose professional life parallels the development of that science. The locale is Chicago, the historical aspects correct and the reading excellent. I was impressed by the author's scientific and physical tenacity, the latter evidenced by the fact that he personally has undergone some eighty-three operations as a result of x-ray burns. I feel that the book should be included in the libraries of all radiologists, of workers in the atomic field, and in medical libraries generally, not only because of the historical interest but because of the contemporary interest and current reawakening of the effects of radiation.

Leo A. Nash, M.D.

LIFE AMONG THE DOCTORS. Paul De Kruif in collaboration with Rhea De Kruif. 470 pages. Price $4.75. New York: Harcourt, Brace and Co., 1949.

Essentially this book deals with the activities of a number of medical men of the past few years. It is colored by the recurring thought that all of the individuals discussed are persecuted heroes. The men whom we recognize in the book do not need that particular type of patronage. A number of direct statements are made and a number of reports are given which should be challenged. Examples of poor literary taste are present

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even to the point of the actual words used. It is unfortunate that the author, who has set himself up in the eyes of the reading public as an able medical and scientific reporter, has to resort to the brand of sensationalism which pervades. In spite of the publisher's note that the book has the deepest social implications of all of De Kruif's works, I doubt that any discerning reader will be moved very much by it, if for no other reason than that the tone is bitter, vindictive and generally low.

LEO A. NASH, M.D.

CONGENITAL ANOMALIES OF THE HEART AND GREAT VESSELS: Clinicopathologic Study of 132 Cases. Thomas J. Dry, M.D., of Mayo Clinic, Jesse E. Edwards, B.S., M.D., of Mayo Clinic, Robert L. Parker, M.S. in Medicine, M.D., F.A.C.P., of Mayo Clinic, Howard B. Burchell, M.D., Ph.D., in Medicine, of Mayo Clinic, H. Milton Rogers, B.S., M.S. in Medicine, M.D., Fellow in Medicine of Mayo Clinic, and Arthur H. Bulbulian, M.S., D.D.S., F.A.C.D. of Mayo Clinic. 68 pages. Illus., including color plates. Price $4.50. Springfield: Charles C Thomas, 1949.

This slender book is an atlas of anomalies of the heart and great vessels, based on a study of 132 clinicopathologic cases. The atlas is divided into sixteen sections, roughly corresponding to a classification of the pathologic anatomy of congenital heart disease. Each section is composed of two pages with the following illustrations:

1. A picture of the scientist who described the entity,
2. colored photographs of models of the heart based on autopsy material,
3. a black and white photograph of an autopsy specimen,
4. a pen and ink drawing clarifying the photograph,
5. the pertinent electrocardiograph, and
6. the chest film.

A biographical and historical note accompanies each scientist's picture.

The text is brief, pithy and interspersed among the illustrations in such a fashion that the illustrations yield a maximum of information with a minimum of study. The atlas is so well planned and illustrated that it does the job that would otherwise require hundreds of pages of dull text.

The atlas can be recommended to all physicians, especially those who seek an easy, painless method of understanding the recent advances in cardiac surgery by studying the pathologic anatomy.

COLEMAN J. CONNOLLY, M.D.

ERNIA DEL DISCO E SCIATICA VERTEBRALE. F. Delitala and A. Bonola. 213 pp. Price—2500 lire. Bologna: L. Cappelli, 1949.

This Italian monograph, published in 1949, contains 213 pages including an extensive bibliography on the intervertebral disk. There are 108 illustrations, many of which are excellent.

The authors consider "posterior intraspinal herniation of the disk" as a more exact term for the pathologic condition which has been variously called "protrusion," "dislocation," "luxation," "extrusion," and so forth of the intervertebral disk. They point out that the herniated material removed at the time of operation frequently is composed of fragments of the annulus.

Although the authors have observed only 200 cases of herniated intervertebral disk, they have made a careful study of the world's literature on the subject and have brought the subject up to date for the Italians who were shut off during World War II "from the great currents of scientific thought."

The authors have restricted the use of iodized oil for myelography because they fear an untoward reaction when the oil comes in contact with the nerve roots. They consider the neurologic examination as the basis of diagnosis.

They have abandoned the intradural method of removal of fibrocartilaginous fragments of disks because of the harm that such a procedure may cause.

The authors have had to reoperate on six patients. From those six experiences they feel that systematic surgical exploration of the space above, below and on he opposite side should be done in instances of pluriraliculitis because of the possibility of multiple herniation of a disk or disks. They also recommend vertebral arthrodesis or radicotomy when the situation is doubtful.

COMPARATIVE RÉSUMÉ OF RESULTS OBTAINED BY INTERVENTION FOR EXTIRPATION OF HERNIATED INTERVERTEBRAL DISKS

Results	Per cent				
	Best	Good	Moderately good	Mediocre	Bad
ove: 987 of 1,217 patients operated on from 1939 to 1941		53.7	36.7		9.6
andy: 843 cases	23.8	43.7		21.9	17.0
rand: 200 cases		63.0	29.0		8.0
ur own cases: Series 1; 78 of 100 patients operated on from 1934 to 1947	26.9	58.9	3.8		10.2
ur own cases: Series 2; 170 of 217 patients operated on from 1934 to 1948	34.1	31.7	25.2	7.6	1.1

The authors have compared their results of surgical reatment of herniated intervertebral disks with those f some American authors.

In the entire United States about 270,000 mental paients are coming back into the community each year. he spread of the disease from those who may have ontracted tuberculosis while in mental hospitals thereore becomes a community problem which we cannot fford to ignore.—*Public Health Reports*, January 7, 1949.

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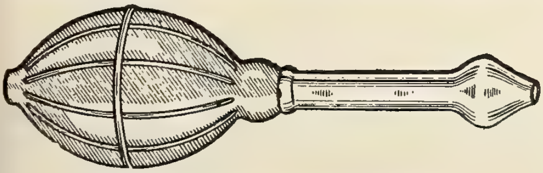

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Minneapolis Man Arrested Third Time for Illegal Practices

Re State of Minnesota vs. Frank Herman Gold, also known as Frank H. Gould.

On January 24, 1950, Frank Herman Gold, also known as Frank H. Gould, 32 years of age, residing at 47½ Washington Avenue South, Minneapolis, was sentenced by the Hon. John A. Weeks, Judge of the District Court of Hennepin County, to a term of one year in the Minneapolis Workhouse. Gold had pleaded guilty on January 18, 1950, to an information charging him with the crime of practicing healing without a basic science certificate. Gold was arrested on January 14, 1950, during an investigation by the Minnesota State Board of Medical Examiners and the Minneapolis Police Department. At the time of his arrest Gold was representing himself as "Dr. Frank H. Gould." Gold had requested one of the Minneapolis drug stores to print some prescriptions for him and after receiving the prescriptions wrote several. The prescriptions were questioned by a pharmacist and this led to Gold's arrest.

Gold has never studied medicine but was employed for several years as an orderly at a hospital in New York City, and also worked in the same capacity for at least three hospitals in Minneapolis and St. Paul. Gold was first arrested on May 18, 1946, by Minneapolis Police officers for representing himself as a physician and surgeon. He pleaded guilty on May 21, 1946, and on June 12, 1946, was sentenced to a term of one year in the Minneapolis Workhouse. Because it was Gold's first conviction the sentence was stayed and the defendant placed on probation. In March, 1948, it was learned that Gold was again practicing healing illegally by representing himself as a doctor of medicine. On March 8, 1948, Gold pleaded guilty to the charge and was sentenced by Judge Levi M. Hall to one year in the Minneapolis Workhouse. Judge Hall required Gold to serve the entire sentence, less time off for good behavior. In December, 1949, there was evidence that Gold again was attempting to practice healing. The investigation made, resulted in his arrest for the third time. Gold was unable to give the Court any logical explanation for his unusual behavior in persisting in his attempt to practice medicine without any medical education or license.

Gold stated that he was born in New York City, June 16, 1917; that he graduated from the James Monroe High School in the Bronx, New York City. Gold further stated that he had been in Minneapolis for the past nine years, except for the time that he served in the United States Navy during World War II. Gold has in his possession, papers indicating that he served as a Pharmacist Mate Third Class.

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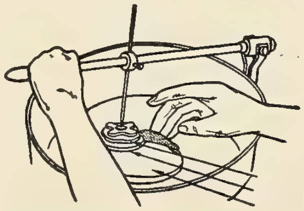

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Contents of MINNESOTA MEDICINE copyrighted by Minnesota State Medical Association, 1950

Entered at the Post Office in Saint Paul as second class mail matter. Accepted for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized July 13, 1918.

MINNESOTA MEDICINE

Official Journal of the Minnesota State Medical Association

Published by the Association under the direction of its Editing and Publishing Committee

Office of Minnesota State Medical Association,
493 Lowry Medical Arts Bldg., Saint Paul 2, Minnesota.

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Annual Subscription—$3.00. Single Copies—$0.40. Foreign and Canadian Subscriptions—$3.50.

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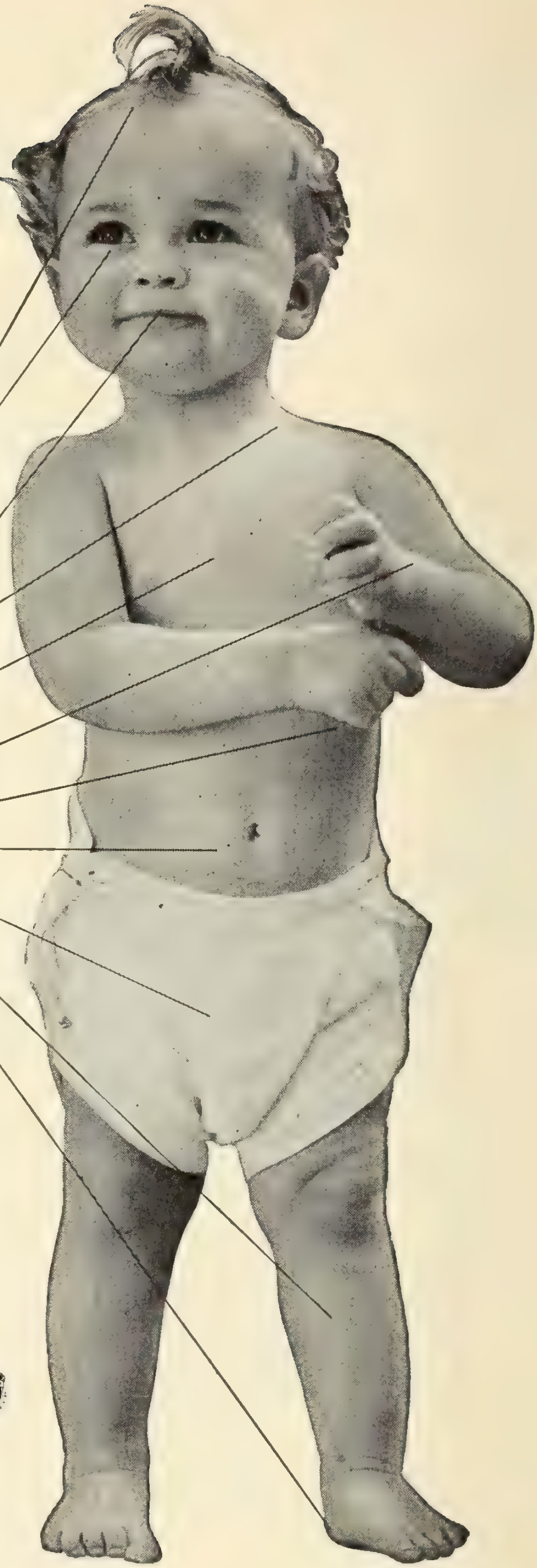

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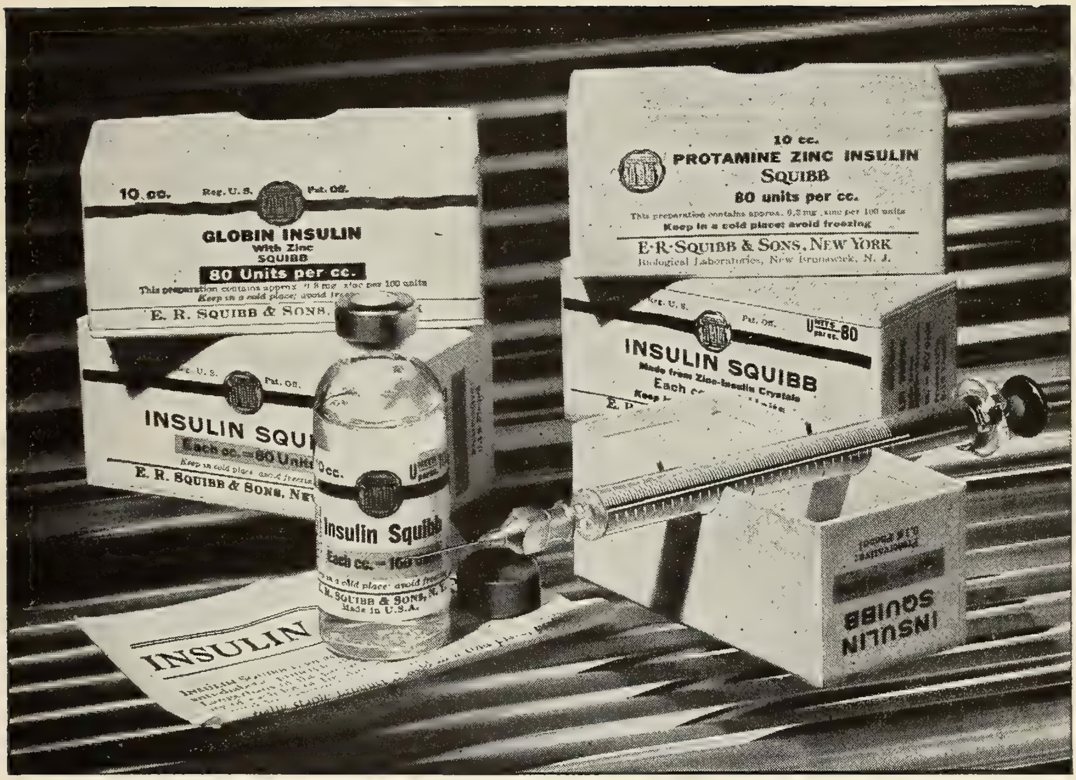
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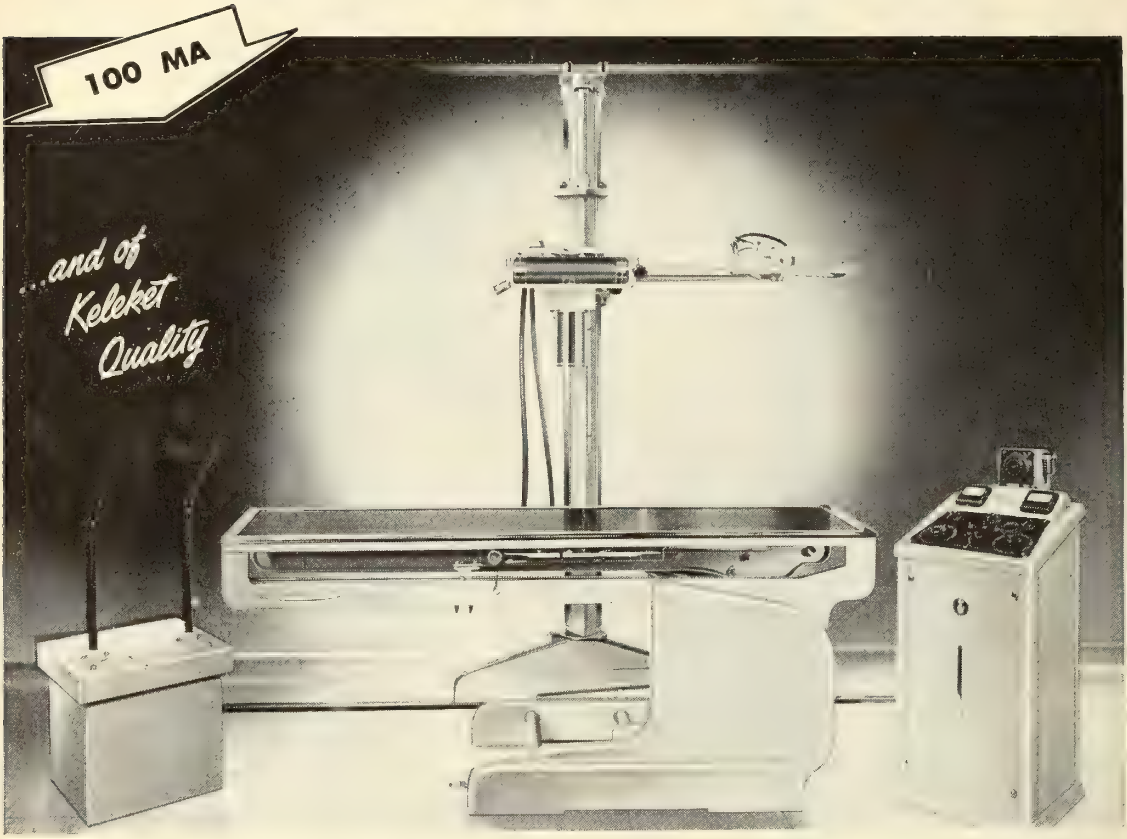

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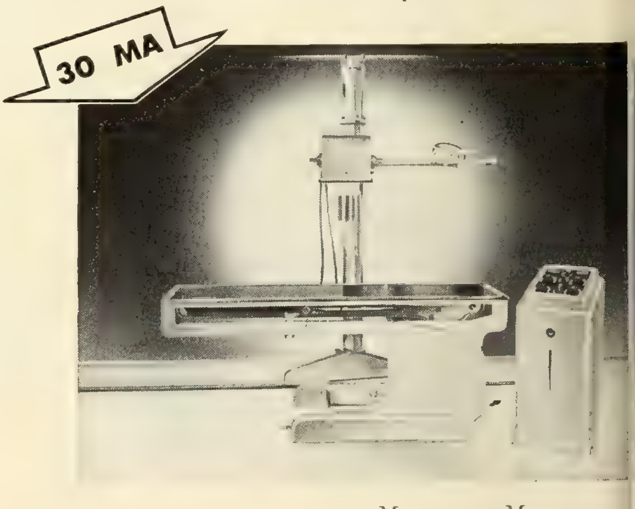

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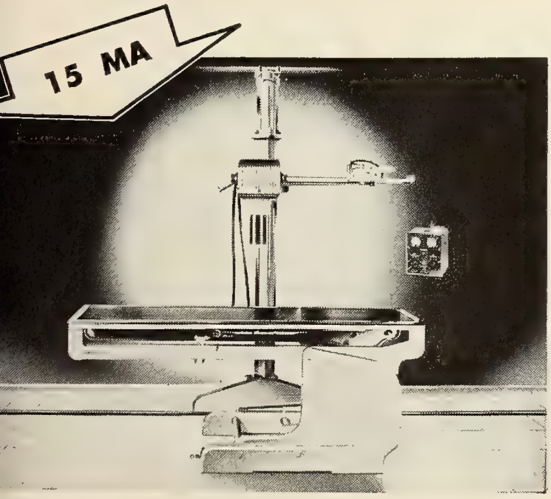

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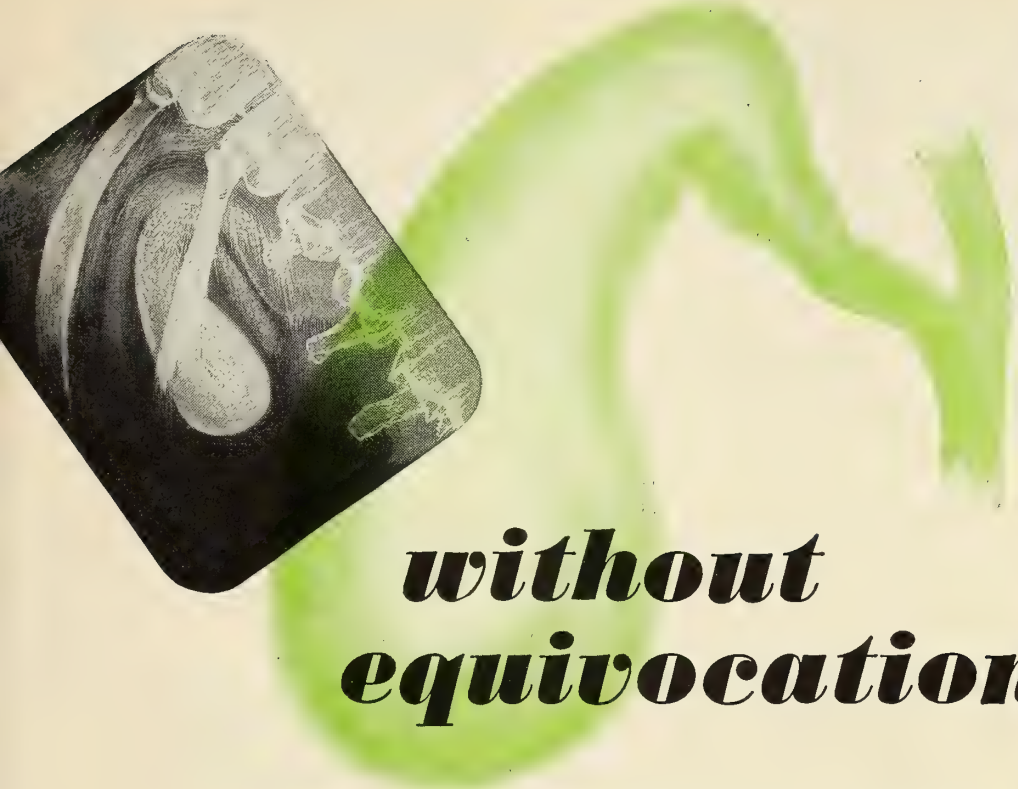

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1. Brewer, A. A.: Radiology *48*:269, 1947.

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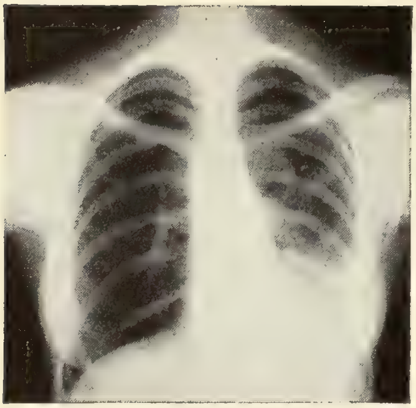

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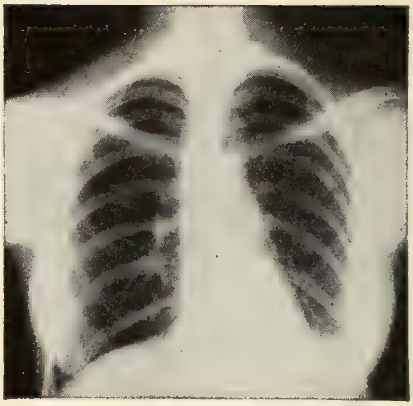

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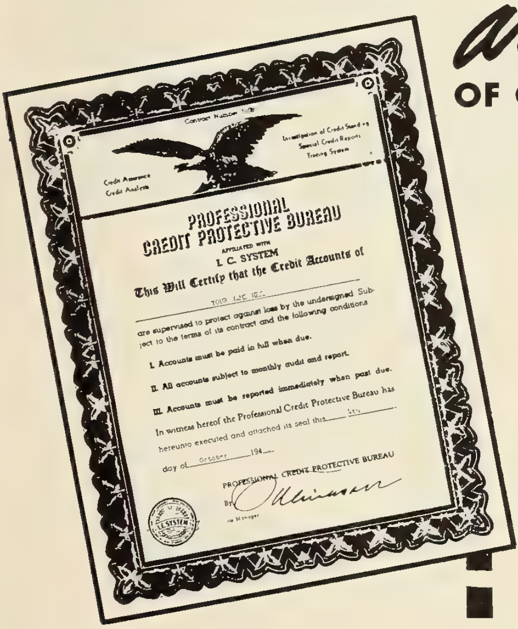

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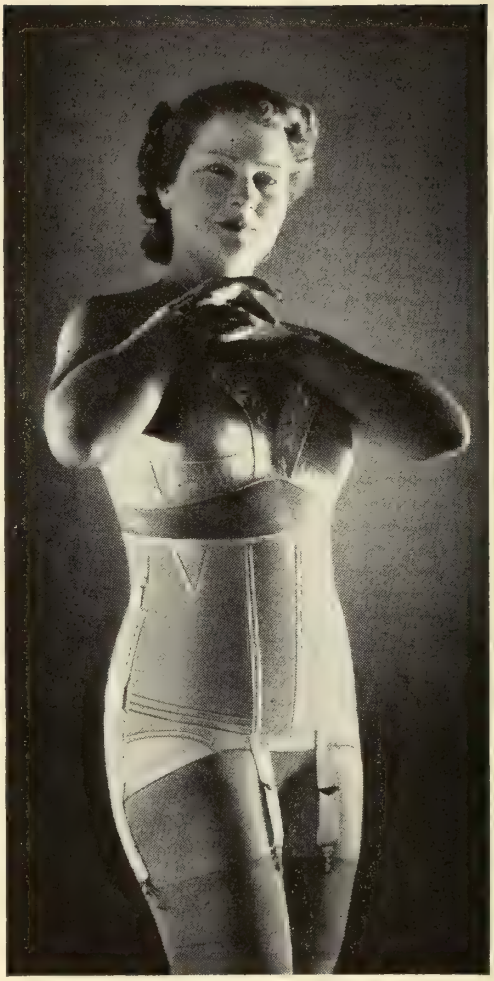

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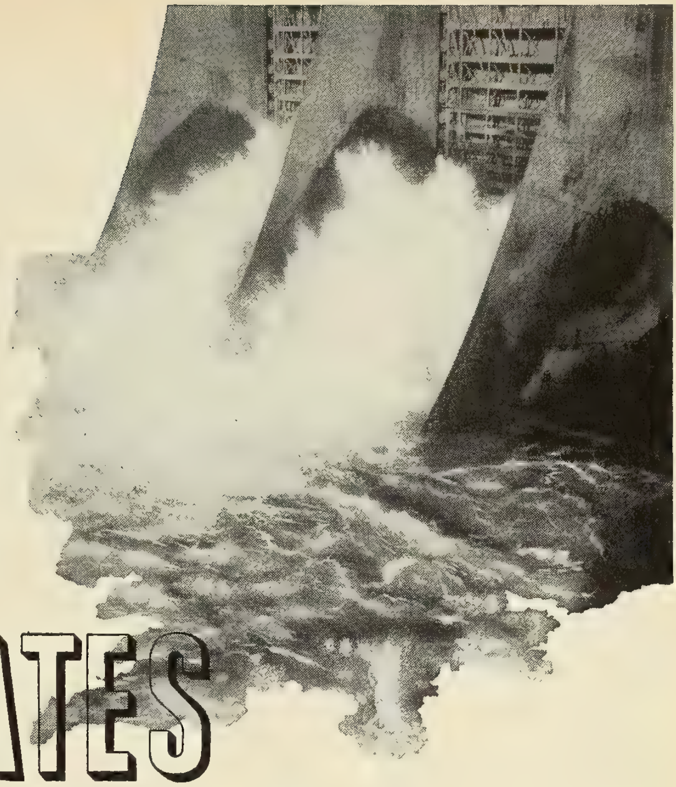

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1. Beckman, H.: Treatment in General Practice. Philadelphia, Saunders, 5th ed., 1946, 704-705.
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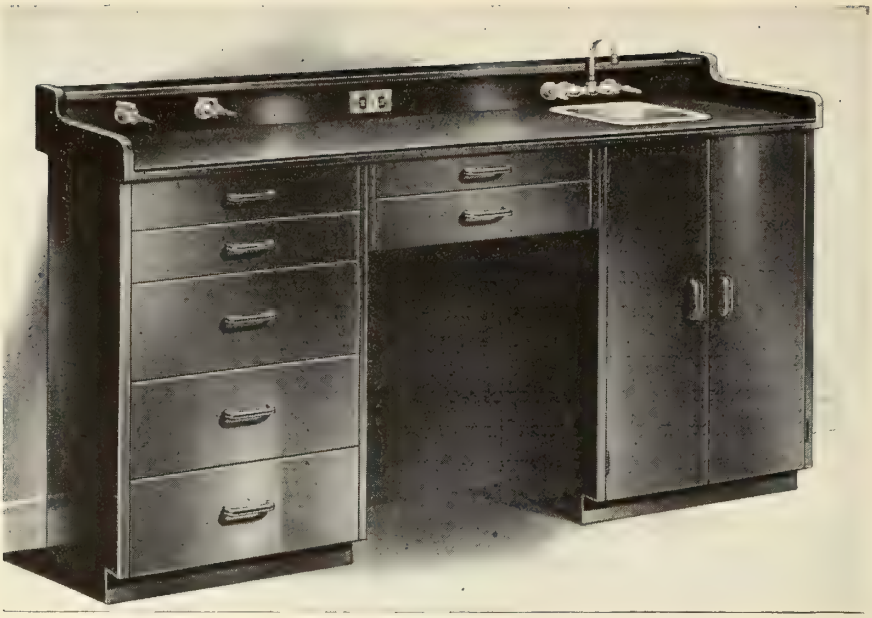

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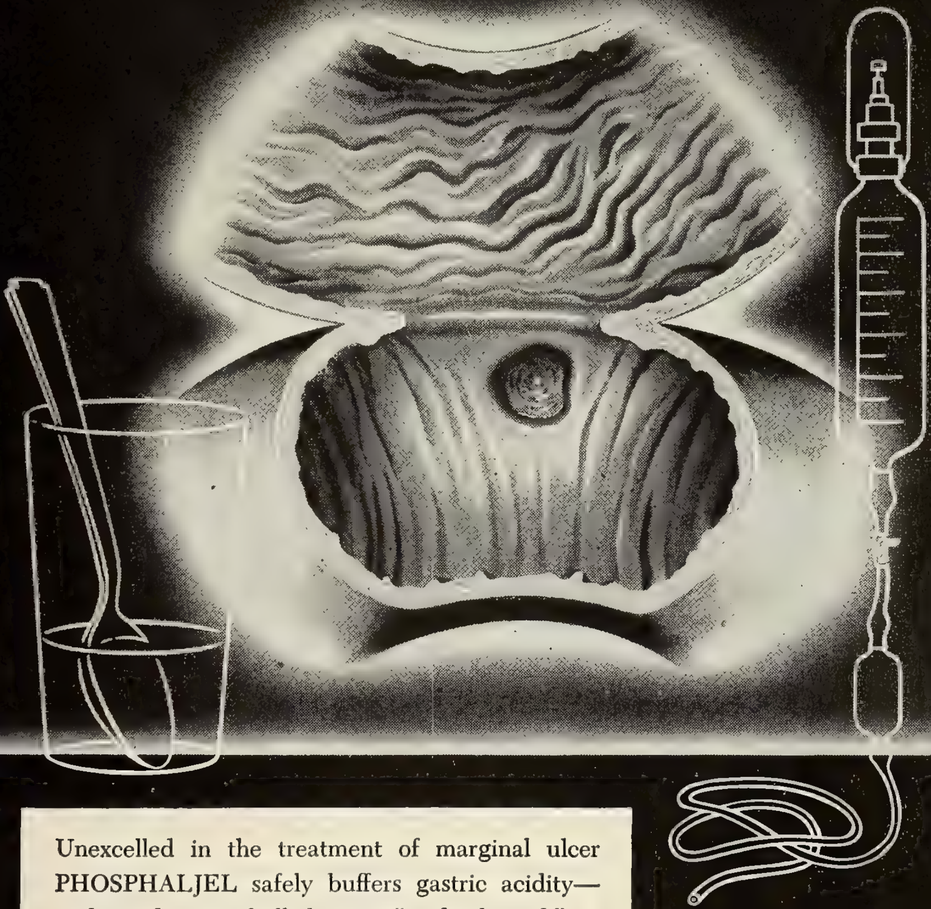

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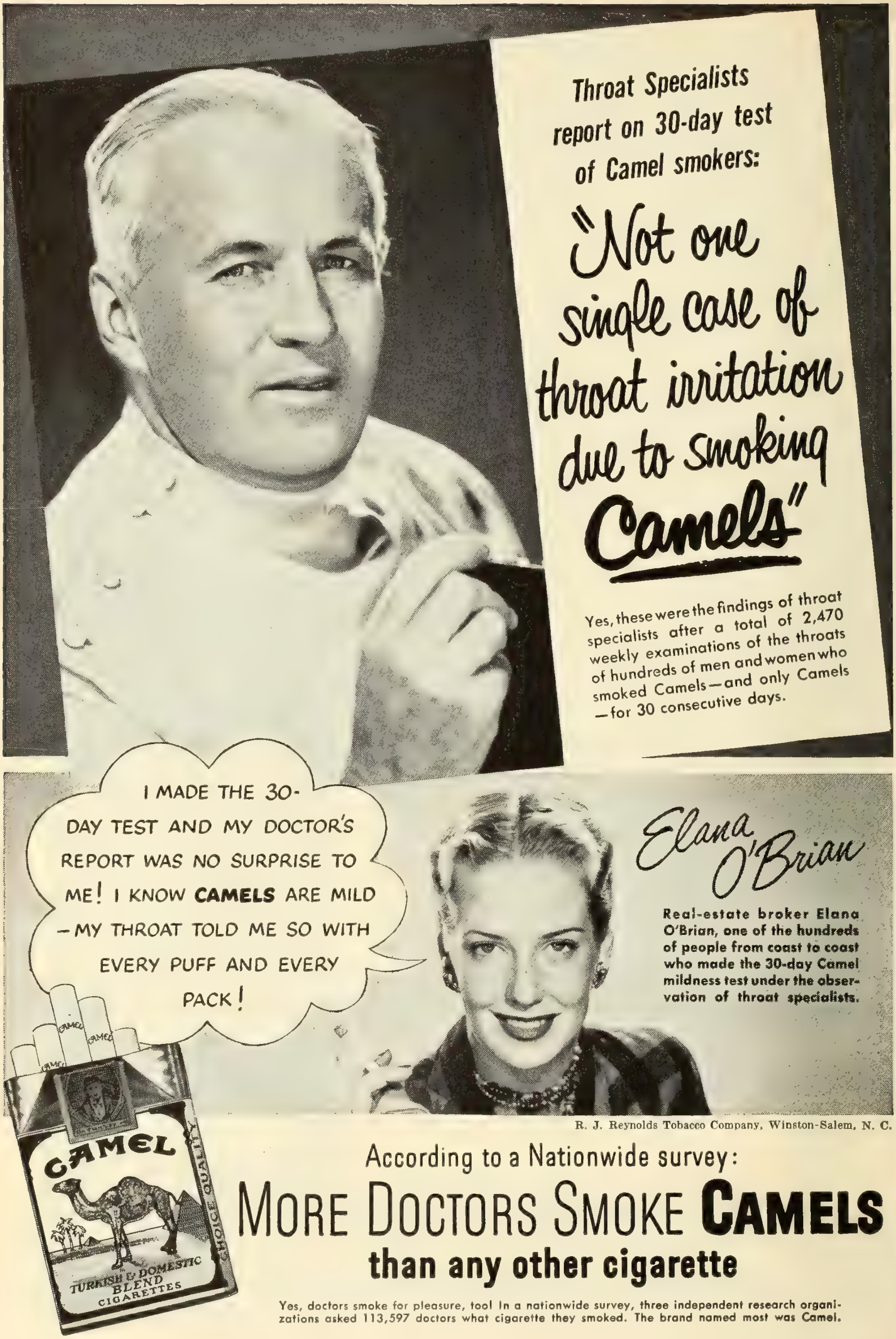

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 33 April, 1950 No. 4

STUDIES ON BRUCELLOSIS IN MINNESOTA

WESLEY W. SPINK, M.D.
Minneapolis, Minnesota

BRUCELLOSIS is an endemic disease of livestock, especially cattle, swine and goats. In Minnesota, it is the most common infection of animals transmitted to man. The disease derives its name from Sir David Bruce,[6] a British Army surgeon, who first identified the causative microbes toward the end of the last century on the Island of Malta. The human disease has also been designated as Malta fever and undulant fever.

In an area like Minnesota, this infection not only is of serious concern to the health of the people, but the disease is costly to the livestock and dairy industries. It is estimated that 4 to 5 per cent of the cattle in the state have brucellosis, and that 2 to 3 per cent of the hogs are infected. Brucellosis is one of the most common causes of abortion in cattle and in swine. Wherever this disease occurs in livestock, the reproduction of animals is decreased. In cattle, the infection also localizes in the udder so that milk production is reduced. With 20 per cent of the annual cash income of the farmers in Minnesota derived from butter, it can be readily seen why brucellosis is of importance in the economy of the state. It has been calculated on a national level that brucellosis costs the cattle industry around $100,000,000, annually.

It is difficult to estimate the number of human cases of brucellosis occurring in Minnesota because the disease can be insidious in its symptomatology, difficult to diagnose, and many mildly ill patients do not seek the advice of a physician. The number of recognized cases since the end of World War II has increased. Recent studies carried on at the University Hospitals indicate that in the rural population up to one-fourth of the people have been infected at some time in their lives.[25]

The problem of brucellosis has not remained unrecognized in Minnesota. Many studies have been pioneered in this area. Investigations on the control of the disease in cattle and in swine have occupied the attention of a group in the Division of Veterinary Medicine in the School of Agriculture at the University of Minnesota, first, under the direction of the late Dr. C. P. Fitch, and now under Dr. W. A. Boyd. Participating in these efforts has been the Minnesota Livestock Sanitary Board under the leadership of Dr. R. L. West. Recognition was also given to the human aspects of brucellosis as long ago as 1913 when the late Dr. W. P. Larsen, Professor of Bacteriology at the University of Minnesota, and Dr. J. P. Sedgwick,[14] former Professor of Pediatrics, reported evidence of the disease in the blood of infants, although the first proved human case of brucellosis was not established in Minnesota until 1927. The Minnesota State Department of Health, especially the Sections of Medical Laboratories and Preventable Diseases, has long been interested in attempts to recognize and prevent brucellosis in human beings.

From the Department of Medicine, University of Minnesota Hospitals and Medical School, Minneapolis.

Presented, in part, as a Sigma Xi Lecture, University of Minnesota, February 23, 1950.

Investigations on brucellosis were supported by research grants from the Division of Research Grants and Fellowships of the National Institute of Health, United States Public Health Service; Lederle Laboratories; the Graduate School, University of Minnesota; Committee on Scientific Research, American Medical Association.

Against this rich background of traditional interest in brucellosis in Minnesota, investigations on human brucellosis were initiated in the Department of Medicine at the University Hospitals in 1937. These studies had their origin at the bedside of patients ill with suspected brucellosis. It soon became apparent that the disease was difficult to recognize and to diagnose correctly, and that specific treatment was lacking. Some of the observations that have been made will be summarized at this time. Certain outstanding features of the disease have commanded interest. First, have been investigations on the epidemiology of brucellosis, or the manner in which patients acquired the infection. Second, has been a study of the natural history of the illness in patients seen at the University Hospitals. In addition, various tissues have been examined in an effort to ascertain what reactions occur as a result of invasion of the body by the microorganisms. Such an inquiry has been directed not only to human patients, but to experimentally infected animals, where the reactions have been more precisely defined. Third, a critical analysis has been made of the diagnostic methods employed for recogizing human brucellosis. Fourth, has been an evaluation of specific therapy for human brucellosis, the results of which have yielded quite encouraging results to date.

Epidemiology of Brucellosis in Minnesota

There are three species of Brucella that cause disease in livestock and in human beings. The most invasive species is *Brucella melitensis,* which originally had the goat as its reservoir. Recent observations in Iowa have shown that *Br. melitensis* also infects hogs under natural conditions.[13] A serious aspect of this finding is that an increasing number of human infections caused by *Br. melitensis* are being encountered in Iowa and in Minnesota. These cases due to *Br. melitensis* result from direct contact with infected swine, or their tissues. In Minnesota, practically all human illness due to *Br. melitensis* occurs in the southern part of the state, particularly in the counties adjacent to the Iowa border.[16] The next most invasive species is *Brucella suis,* which has as its normal habitat the tissues of swine. Strains of *Br. suis* have invaded and localized in the udders of cattle, and human epidemics of brucellosis have been caused by the ingestion of unpasteurized cow's milk containing this species of brucella.[2,3,12] In recent years, fewer and fewer cases of human brucellosis in Minnesota have been caused by *Br. suis.* The least invasive species is *Brucella abortus* with cattle as its natural reservoir. While in general, *Br. abortus* causes a less severe disease than that due to *Br. melitensis* or *Br. suis,* nevertheless, a protracted and grave illness can be induced by *Br. abortus,* in which serious and even fatal complications can occur. In a collaborative study carried out between the Department of Medicine at the University Hospitals and the Laboratories and Section of Preventable Disease of the Minnesota State Department of Health, the etiology of 268 bacteriologically proved cases of brucellosis occurring in Minnesota between January 1, 1945, and June 30, 1948[16] was determined as follows:

Species	*No. Cases*	*Per cent*
Brucella abortus	230	85.8
Brucella melitensis	22	8.2
Brucella suis	16	6.0

It is quite apparent that the great majority of human infections in Minnesota are due to *Br. abortus.*

Brucellosis is very rarely transmitted from human to human. The disease in Minnesota is acquired through direct contact with infected animals or their tissues or secretions, and by ingesting contaminated, unpasteurized milk or cream. The microorganisms enter small abrasions of the skin quite readily. Although there is experimental evidence indicating that brucellosis may be acquired through the respiratory tract following the inhalation of dust which contains viable organisms, there is still no clear-cut proof that this occurs under natural conditions.

In the collaborative epidemiologic study already referred to, it was found that about three-fourths of all proved cases of brucellosis occurred in males, and that three-fourths of these cases were in the third, fourth or fifth decade of life. There is no doubt that recognizable brucellosis in children under twelve years of age occurs much less frequently than in adults. Children appear to be more resistant to the infection. This study also revealed that approximately 75 per cent of all the cases of brucellosis in Minnesota resulted from direct contact with infected animals, or their tissues and secretions, while about 25 per cent were due to drinking unpasteurized milk. It should be emphasized that in whole milk, Brucellae appear in larger numbers in the cream fraction, and that the disease is quite readily contracted by ingesting fresh cream in one form or another. This Minnesota study has emphasized quite clearly that at least 60 per cent of the cases were occupational in origin involving farmers as the largest single group, followed by meat-packing plant employes.

In summary, human brucellosis in Minnesota is due primarily to *Br. abortus* with three-fourths of the cases occurring in males. Approximately 75 per cent of the cases are caused by contact, and 25 per cent are due to the ingestion of unpasteurized milk. At least 60 per cent of the cases are occupational in origin with farmers constituting the largest single group, followed by meat-packing plant employes.

Natural History of Human Brucellosis

There is no question that a clinical description of brucellosis will depend upon the status of the population infected, and the species of brucella causing the disease. Thus, the over-all picture in a well nourished people infected with *Br. abortus* in Minnesota differs from that seen in undernourished Mexican Indians infected by *Br. melitensis,* and who are frequently suffering from other parasitic invasion. Acute brucellosis caused by *Br. abortus* is characterized by weakness, chilly sensations and fever, sweats, bodily aches and pain, headache and backache. Physical abnormalities may be absent in many cases, but when present include splenomegaly, and cervical and axillary lymphadenopathy. In general, the duration of the illness is less than 6 months, and many cases terminate in a state of well-being within a few weeks. Not infrequently, the acute phase of the illness is so mild the cause of the illness may be unrecognized. Acute brucellosis is most frequently misdiagnosed by being called "influenza" or an "unknown virus disease." In an occasional case, a mild but acute illness may be succeeded by a persistent state of ill health featured by a continual feeling of weakness, low-grade fever, mental and physical inertia, vague aches and pains, and mental depression. From time to time these smoldering cases of brucellosis are diagnosed as instances of psychoneurosis, neurasthenia or an anxiety state. Only 10 to 15 per cent of the cases in the Minnesota study fall into this category of chronic brucellosis, or an illness enduring for more than one year. It has been observed in a large number of patients having either psychoneurosis or an anxiety state that many have been misdiagnosed as having chronic brucellosis on the basis of inadequate information, such as a positive skin test following the injection of brucella antigen. In an occasional patient, acute brucellosis may be followed by a post-infectious state of neurasthenia. But this is not specific for brucellosis, and occurs in other infectious diseases. The majority of cases of culturally proved chronic brucellosis studied at the University Hospitals whose illness extended beyond one year have been associated with demonstrable complications such as spondylitis, encephalomeningitis and endocarditis.[24,29,30] Brucellosis does not cause human abortions any more frequently than other bacterial infections. Orchitis in the human is more frequently associated with infection due to *Br. melitensis* than to *Br. abortus.* Likewise, neurological complications, such as severe sciatica, are encountered much more often in patients with illness due to *Br. melitensis.*

A study of the tissue reactions induced by brucella in human patients and in experimentally infected animals, has yielded very helpful information in an understanding of the natural history of the disease. Brucellae localize principally in the reticuloendothelial system. A characteristic granulomatous type of lesion free of suppuration or caseation has been demonstrated repeatedly in sections of sternal bone marrow and liver obtained by biopsy techniques.[28,32] These lesions are similar to those encountered in sarcoidosis, tuberculosis and syphilis. The nonsuppurating tubercles of brucellosis induced by *Br. abortus* have been interpreted in experimentally infected animals to represent a good defense mechanism and invasion of the tissues by microorganisms that are only mildly virulent. In contrast, strains of *Br. suis* frequently cause destruction of tissues with suppuration. *Br. melitensis* induces a severe state of toxemia and a chronic state of debility, but less suppuration than that caused by *Br. suis.*

The death rate from brucellosis is low. In the series at the University Hospital three patients have died, all deaths being due to subacute bacterial endocarditis and caused by *Br. abortus.* This is a mortality rate of about 3 per cent of all culturally proved cases.

The Diagnosis of Brucellosis

A history of exposure to the disease and an otherwise undefined febrile illness permit only a presumptive diagnosis of brucellosis. A precise diagnosis depends upon laboratory data. The total leukocyte count is either normal or reduced, and very rarely above 10,000 cells per cubic millimeter. A relative lymphocytosis is usually present. The erythrocyte sedimentation rate may be normal or accelerated, and is of no diagnostic value.[1] The most reliable method for screening suspected cases is by means of the agglutination test, which is carried out on request by the Laboratories of the Minnesota Department of Health. During the past twelve years, not a single case of bacteriologically proved brucellosis has been seen at the University Hospitals in which agglutinins have been absent from the blood. The agglutinin titer is usually 1 to 160 or above. In fact, over 90 per cent of the culturally proved cases have had a titer of 1 to 320 or more. It is most unusual to encounter a titer of 1 to 80 or less in a specimen of blood from which brucellae are recovered. A significant segment of the healthy population of Minnesota have a low titer of brucella agglutinins. In a recent study of over 1,627 healthy donors appearing at the blood bank of the University Hospitals, it was found that 18.54 per cent had brucella agglutinins in a titer up to 1 to 80. Less than 2 per cent had a titer of 1 to 160 or more, and in many of these individuals a history of exposure to the disease was elicited.[22]

If repeated examinations of the blood in a suspected case of brucellosis reveal the absence of agglutinins, it is highly unlikely that the patient has the disease. In the absence of postive blood cultures, too much dependence cannot be attached to titers that are consistently below 1 to 160. At least one culture of blood for brucella should be made in a patient suspected of having the disease, and such a culture should be carried out in every case when the agglutinin titer is 1 to 160 and above. Appropriate culture flasks may be obtained from the Minnesota Department of Health. At the University Hospitals, organisms have been recovered from the blood in about 25 per cent of the cases having active disease.

A positive intradermal test with brucella antigen denotes a state of hypersensitivity due to invasion of the tissues by the organisms at some time in the past. A positive skin test does not mean the presence of active disease. Since a survey at the University Hospitals revealed that approximately 20 per cent of a predominantly rural group of individuals had positive skin tests without other evidence of the disease, the skin test as a diagnostic procedure has been abandoned.[25] A positive skin test in a suspected case of brucellosis having either low titer of agglutinins or absent agglutinins is more confusing than enlightening. The opsonocytophagic test, which is a quantitative determination of phagocytosis of viable brucella by the polymorphonuclear leukocytes, has not yielded enough reliable information as a diagnostic procedure. Its use is not recommended.

The Treatment of Brucellosis

Considerable advancements have been made in the last few years in the specific therapy of brucellosis. While many patients with acute brucellosis may recover from the disease spontaneously, there are a significant number of patients whose illnesses pursue a more chronic course, often with debilitating and painful complications. Therefore, an extensive research program has been directed toward an evaluation of many agents, which might abruptly terminate the illness when administered to patients. These investigations have called for the screening of a large number of drugs in the laboratory and in experimentally infected animals.[5,10,15,18,19,34] The studies began in 1937, the year in which sulfanilamide became available for the treatment of bacterial infections. Because sulfanilamide, and some of the derivatives of sulfanilamide, such as sulfapyridine, sulfathiazole, sulfadiazine, and sulfamerazine, yielded encouraging results in the laboratory, patients were treated with these agents. While there was no question that in a few patients with acute brucellosis, therapy with one of the sulfonamides coincided with prompt recovery, the over-all results made it quite clear that the sulfonamides were not the answer to specific therapy.

A series of experimental and clinical studies were then undertaken with the antibiotics. Penicillin was soon found to be ineffective. Much more promising results were obtained experimentally with streptomycin, but when the drug was administered to acutely ill patients, the course of the disease was not significantly altered. This inconsistency between a good antibrucella effect of streptomycin under laboratory conditions and the poor results obtained in human beings has not been adequately explained. By a set of fortuitous circumstances, it was observed in a patient critically ill with brucellosis that the simultaneous administration of streptomycin and sulfadiazine caused a decided improvement. The advantage of this combination was soon confirmed in several more patients.[20,21,26,27] The most dramatic effect of this combined treatment was in a patient with a highly fatal complication of brucellosis, that of subacute bacterial endocarditis due to *Br. abortus.* This patient recovered following treatment, and has remained well for almost three years. Other workers have also reported on the success of the combination of streptomycin and sulfadiazine in culturally proved acute and chronic brucellosis.[9,17] One of the best controlled studies is that of Herrell and Nichols[11] of the Mayo Clinic, who treated 14 patients with excellent results.

Although the combination of streptomycin and sulfadiazine provided a definite advancement in the therapy of human brucellosis, this treatment also offered certain disadvantages. Prominent among the undesirable effects was the toxicity of streptomycin, which was reflected in vestibular dysfunction. In addition, some of the patients had a relapse after the completion of treatment. Streptomycin also had to be injected intramuscularly. A more desirable therapeutic approach would be with an agent or agents that could be administered by mouth; that would be less toxic; and that would be just as efficient, if not more so. It was just at this stage of experience at the University Hospitals that aureomycin appeared. This was a relatively nontoxic antibiotic that could be given by mouth. Preliminary experiments with this new antibiotic indicated that aureomycin was not as effective against brucella as the combination of streptomycin and sulfadiazine.[15] Accordingly, a therapeutic trial with aureomycin in human brucellosis was not seriously anticipated until a most unusual opportunity for evaluation presented itself. Through an invitation by the Government of Mexico, a co-operative study on the therapy of brucellosis was carried on at the General Hospital in Mexico City with Dr. M. Ruiz-Castaneda, who was in charge of brucellosis control in that country. Following the use of aureomycin by mouth in critically ill patients, the results were unexpectedly most dramatic.[23] Patients who had relapsed following the use of streptomycin and sulfadiazine, and some who were not expected to live, recovered promptly after receiving aureomycin. These results were subsequently confirmed in the treatment of patients in Minneapolis.[4] More recently there appeared in the British literature the significant paper of Dr. J. E. DeBono, Professor of Medicine in the Royal University of Malta.[8] He stated, "after a long and disappointing experience in the treatment of undulant fever one cannot help being somewhat cautious in expressing one's opionion. Notwithstanding this, the results have been so constant, so rapid, and even dramatic that it is impossible to deny that aureomycin has a specific action on *Brucella melitensis* in vivo." Bryer and his associates[7] of Baltimore also look upon aureomycin with favor in the treatment of brucellosis. Almost two years have elapsed since aureomycin was introduced into the treatment of brucellosis at the University Hospitals. This has permitted a follow-up of patients treated with the drug. Over 90 per cent of the patients have remained well following treatment. The recommended dose is now 20 to 30 mgs. per kg. of body weight per day, administered in three or four divided doses for two weeks. A maximum daily intake in an adult should be 2 gm., given in a dose of 0.5 gm. four times a day for two weeks. It has not been found necessary thus far to give aureomycin in combination with another antibiotic. A few patients who have relapsed have recovered following a second course of therapy.

Another antibiotic introduced for the treatment of brucellosis has been chloromycetin. This drug too can be administered orally and does not produce serious toxic reactions. There is no doubt that chloromycetin is effective in some cases of brucellosis.[33] Experience with chloromycetin in brucellosis at the University Hospitals has been limited, but it appears to be less effective than aureomycin.

There should remain no doubt that specific therapy is now available for the treatment of human brucellosis. Prompt treatment of acute cases not only hastens recovery, but also prevents devastating and serious complications.

Some Urgent Problems in Brucellosis Requiring Resolution

While many advancements have been made in our knowledge of brucellosis, much work and research remain to be done. Of paramount importance is the eradication of the natural reservoir of this disease. Brucellosis will not cease to be a threat to human health as long as there are infected cattle, hogs and goats. It is now generally agreed among authorities that brucellosis can only be wiped out in livestock by eliminating the infected animals and by protecting susceptible animals. In cattle this has called for a program of test and slaughter in heavily infected areas, and the immunization of calves with living, but avirulent brucella. Excellent progress along these lines has been made in Minnesota. There are many areas, especially in the northern part of the state, that are free from the disease. But a more persistent and aggressive effort is needed in some other areas. The very difficult problem of control of swine brucellosis requires further study. Brucellosis in hogs is not so readily diagnosed as in cattle. Because brucellosis is highly contagious in livestock it is readily seen why an eradication program must be a co-operative effort on an area or county basis. It is not enough that a few determined farmers and livestock producers should fight this disease. Because of the economic loss that is entailed it takes courage and vision to slaughter or eliminate highly prized, but infected, animals from a herd. Leadership and an educational program are essential in spearheading an effort of eradication. Physicians practicing in rural areas may greatly encourage this program by becoming acquainted with the status of the animal disease in their areas, and then lending their support to the local efforts by citing the danger of brucellosis to public health. Finally, brucellosis can only be completely stamped out in animals, and the constant threat of infection eliminated, by a nation-wide campaign of eradication. It is encouraging to see the progress that has been made along these lines during the past few years.

One of the most urgent problems in the field of human brucellosis is a more scientific clarification of what is meant by chronic brucellosis. During the past decade or two, some individuals have crystallized attention on the chronicity of the disease to such an extent that the diagnosis is frequently being made on the basis of flimsy and uncritical data. The widespread use of the skin test in diagnosing active disease has been most devastating in rupturing scientific inquiry into the nature of chronic brucellosis. A positive skin test and the symptoms of neurasthenia are all that many physicians require for an absolute diagnosis of chronic disease. It reflects a serious state of unscientific approach to problems in psychosomatic medicine. It is as though the phthisiologist were to diagnose *and treat* active tuberculosis on the basis of a positive tuberculin test and a vague symptomatology, without any objective evidence of localization of the disease. In an attempt to define more accurately the nature of chronic brucellosis a collaborative study has been instituted between the Department of Medicine at the University of Minnesota Hospitals and the section of Preventable Diseases of the Minnesota Department of Health. Careful follow-up clinical and laboratory studies are being made on a large group of patients with *bacteriologic proved* brucellosis. This investigation is being conducted with the aid of physicians throughout the state, whose willingness to co-operate in the effort has been most gratifying. It is only on the basis of a much needed study such as this that the frequency and nature of chronic brucellosis can be deliniated.

Acknowledgment

In the prosecution of these studies I am indebted to many individuals, especially to Dr. W. H. Hall, Dr. A. I. Braude, Dr. R. Magoffin, Dr. J. M. Shaffer, Dr. E. Yow, and Dr. B. Waisbren, and to Dorothy Anderson for valuable technical assistance.

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SOME RECENT ASPECTS OF CARDIAC AND JUXTA-CARDIAC SURGERY

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SOME of the most notable advances during the last decade have been made in surgery of the heart and great vessels. It is not surprising that this should be so, as it has become possible to perform extensive operations because of the enormous amount of detailed study and experiment which has been devoted to answering the question of why patients die after operations from causes other than hemorrhages. One of the major trends in the past twenty-five years of American surgery is the emphasis on training in physiology in the long-term preparation of the young surgeon. Most advances in thoracic and vascular surgery have been made by physiologically minded surgeons.

It is our intention at this time to review briefly some of the studies made in cardiac and juxtacardiac surgery. The following classification is not intended to be a diagnostic chart, but merely a group listing of the diseases that have been or are being attacked in the human or in the experimental animal. It must be understood that this review can only be a small part of the work that is probably going on in laboratories or hospitals all over the world and has not as yet been reported.

Surgery of Heart and Great Vessels

I. Congenital Abnormalities
  A. Malformations which permit the body to receive an oxygen supply sufficient for the growth of the individual.
    1. Patent ductus arteriosus
    2. Defects in the auricular septum
    3. Defects in the ventricular septum
    4. Anomalies of the aortic arch
    5. Coarctation of the aorta
    6. Anomalies of the aortic valve and the ascending aorta.
  B. Malformations which deprive the body of an adequate amount of oxygenated blood.
    1. The tetralogy of Fallot
    2. Defective development of the right ventricle and tricuspid atresia
    3. Pure pulmonary stenosis
    4. Complete transposition of the great vessels and the common associated anomalies
    5. Anomalies of the venous return
  C. Defects of pericardium

II. Acquired abnormalities
  A. Sequelae of rheumatic heart disease
    1. Mitral stenosis
      (a) Valvulotomy
      (b) Commissurotomy
      (c) Interatrial septal defect
      (d) Pulmonary vein to azygos vein anastomosis
      (e) Sympathectomy
      (f) Ligation of auricular appendage
  B. Coronary heart disease
    1. Sympathectomy for anginal pain
    2. Pericoronary neurectomy
    3. Coronary sinus ligation
    4. Revascularization of the heart by graft from aorta to coronary sinus
    5. Anastomosis between the arterial bed of lung grafted upon the heart and the coronary arteries
    6. Excision of cardiac infarcts
  C. Constrictive pericarditis

III. Pump oxygenators

Congenital Abnormalities

Malformations Which Permit the Body to Receive an Oxygen Supply Sufficient for the Growth of the Individual

Patent Ductus Arteriosus.—It is fitting to begin the discussion of surgery of the congenital malformations by first discussing briefly the patent ductus arteriosus. Gross[19] in 1938 performed the first successful ligations of the ductus. Attempts had been made previous to this, but without success. In 1939 he reported his first successful case, and since that time great strides in the field of vascular surgery have been made. Certainly all due credit belongs to Dr. Gross in being the pioneer of congenital heart surgery.

Normally the communication present *in utero* between the pulmonary artery and the aorta, known as the ductus arteriosus, becomes closed off soon after birth. In some individuals this obligation may be delayed for weeks, for months, or even longer. Christie[12] found, from a study of routine autopsies, that the ductus was obliterated in 95 per cent of subjects by the end of the twelfth week, and in 99 per cent by the end of the first year. The exact mechanism of closure is debatable. However, it must be noted that a patent

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Presented at the Medical Assembly, Saint Paul, Minnesota, February 6, 1950.

ductus arteriosus does not represent a vital abnormality of any sort; instead it is a failure of normal closure after the child has been born.

It is not within the scope of this paper to discuss in detail the diagnosis of this abnormality. Suffice it to say that a machinery murmur is heard which distinguishes it from other abnormalities. The hazards which are recognized and occur rather frequently, and are an indication for surgery, are: (1) the diversion of so much blood from the aorta into the pulmonary artery that the individual has a belated physical development; (2) the heart may enlarge in an attempt to maintain the peripheral circulation at a satisfactory level; (3) there may be superimposed bacterial infection with streptococcus viridans; (4) the ductus may rupture.

Keys and Shapiro[25] have reviewed some 600 cases of untreated patent ductus arteriosus. They point out that patients who are alive at seventeen years of age, with an open ductus, have a life expectancy which averages about half that of the population as a whole. It is, therefore, on this basis that surgical intervention and closure of the vessel is a worthwhile procedure. This procedure is now being carried out in numerous clinics. As a matter of fact, a discussion of surgical intervention in patent ductus arteriosus was first held here in the state of Minnesota when Dr. Elliot Cutler visited as a Judd lecturer in 1935. At that time it was suggested to Dr. Wangensteen by Dr. George E. Fahr that ligature of the patent ductus was feasible and desirable. Dr. Cutler suggested that a Parham band be put around the ductus of a patient that was presented at that time. The first ductus operation in the state was performed by Dr. Owen H. Wangensteen[35] in 1939, and since that time about 100 have been done. Methods of closure of the ductus have undergone several stages of development, but the procedure that has been accepted by most surgeons is one in which the ductus is cut across and the ends ligated individually or suture ligations are used. The group under Dr. Alfred Blalock at Johns Hopkins has been the keenest proponent of suture ligation, which is to be differentiated from simple ligation.

The follow-up on patients who have had surgical closure of the ductus has shown most gratifying results. The mortality is less than 3 per cent in most series in the country. The difficulties of the technique that have to do with surgical mortality are mainly those due to hemorrhage. It is in the dissection of the posterior wall of the ductus that this complication is met with. We have learned by experience that in order to avoid this complication, it is well to complete the dissection upward toward the aortic arch while working beside the ductus, and to keep away from the thin-walled pulmonary artery, which is less tough and less able to withstand manipulations and mechanical injury.

Defects in the Auricular Septum.—Interauricular septal defect may or may not lead to disturbed function of the heart. In those cases in which a communication between the two auricles has been diagnosed, some attempt will surely be made in the future to close the communication. Patients who suffer from such conditions frequently seek medical attention. Among young adults it is probably the congenital malformation of the heart most frequently seen in medical practice and least frequently diagnosed correctly. Although in its most characteristic form this malformation produces an unusual clinical syndrome, the ausculatory findings are subject to wide variations, and, therefore, those who place reliance upon murmurs and thrills are frequently misled. Introcardiac catherization which has led to great progress in the diagnosis of cardiovascular disease may be used in the diagnosis of this defect.

Defects in the auricular septum are due to some failure in the formation of the septum, or failure in the anatomic closure of the foramen ovale. Whenever there is a gross defect in the auricular wall, there is free communication beetween the two auricles. The usual direction of flow of blood is from left to right because the pressure in the left auricle is generally somewhat higher than that in the right auricle. Complications consequent to the presence of this defect are such that an attempt at closure would be very beneficial. Cardiac arrhythmias are common. Pneumonia, pulmonary infections and pulmonary emboli are frequently encountered. Dilatation of the right heart may take place and does take place very frequently.

Attempts at closure of interatrial septal defects have been proposed in various communications. Cohn[13] attempted the invagination of the wall of the auricle and suture of this to the edges of the defect. We have been in the process of preparing an instrument which will work on a patch technique, as one patches a hole in a tire. This instrument will be inserted into the atrium and closure of the interatrial defect will be attempted with the use of a piece of pericardium held by means of clips. There is no doubt that the ultimate answer to intracardiac defects of this sort will be the extracorporeal heart of Gibbon[17] or Dennis.[10] However, until the time arrives when this apparatus shall have been perfected, some attempts at closure should be made in salvage cases.

A word at this time about an unusual condition associated with interatrial septal defect. This condition is known as the Lutembacher syndrome. This abnormality is an auricular septal defect combined with congenital or acquired mitral stenosis and enormous dilatation of the pulmonary artery. The abnormal size of the pulmonary artery is an integral part of the abnormality. Mitral stenosis, either congenital or acquired, increases the strain on the right side of the heart, and increases the dilatation of the pulmonary artery. It is the great enlargement of the pulmonary artery which differentiates this both clinically and at autopsy from other auricular septal defects. Dr. Osler Abbott[1] has attempted reduction in the size of the pulmonary artery recently. He has wrapped cellophane around the greatly dilated vessels in an attempt to relieve some of the pressure symptoms associated with this enlarged pulmonary artery and possibly to reduce the pulmonary blood flow. It is also interesting to note that this condition is exactly the one that is being produced in some cases of mitral stenosis, i.e., an interatrial septal defect to relieve the pressure in the left auricle.

Defects in the Ventricular Septum.—A common name for this disease is Maladie de Roger. Essentially an interventricular septal defect may be a high or a low defect. The high defect actually differs from the Maladie de Roger in that, instead of a perforation in the wall, the aortic septum fails to meet the ventricular septum. This occurs commonly in the tetralogy of Fallot or the Eisenmenger complex. Generally speaking, when a low defect is present, the prognosis in cases of a small lesion is excellent. It is only in cases in which the defect is so large that the arterio-venous shunt causes changes in the pulmonary vessels that the prognosis should be guarded. G. Gordon Murray[27] recently has used an ingenious method in attempting to close an interventricular septal defect. By landmarking the projections of the interventricular septum, on the anterior and posterior surfaces of the heart, he has pulled through in an anterior posterior direction, pieces of fascia lata and anchored them on the surface of the heart. In this way he has been able to reduce the flow of the left to right shunt that is present in an abnormality of this sort. It is our intention to use in this particular abnormality the instrument proposed for use in the interatrial septal defect.

Anomalies of the Aortic Arch.—Anomalies in the direction in which the aorta arches or abnormalities in the origin of the great vessels from the arch of the aorta are by no means rare. They may occur together or separately. When the aorta arches to the right, the descending aorta may lie either to the right or to the left of the spinal column. If the aorta arches to the right and descends upon the right, the condition is known as a right aortic arch. When, however, the aorta arches to the right and is drawn abruptly back to the left and descends upon the left, the condition is known as a right aortic arch with a left descending aorta.

Generally speaking, most of the anomalies do not require surgical therapy. However, there are some combinations in which, because of stridor, dyspnea, cyanosis, hoarseness and cough, surgical intervention is indicated:

1. *The combination of a retro-esophageal right aortic arch and left descending aorta, and a persistent anterior arch.* This is commonly known as a double aortic arch or aortic ring. The trachea and esophagus are included within the center of the ring and constricted. Surgical therapy for this anomaly requires division of the anterior limb of the aorta between the origins of the left common carotid artery and the left subclavian. The left common carotid artery is then tacked to the back of the sternum so that it will not press on the anterior surface of the trachea.[21]

2. *A right aortic arch with the descending aorta drawn to the left by a left ductus arteriosus.* There should be little difficulty in correcting this condition, as a division of the ductus will allow the pulmonary artery to fall forward, thus giving more room for the trachea and esophagus.

3. *Anomalous right subclavian artery.* This may give rise to a condition known as "dysphagia

lusoria." The right subclavian artery, instead of arising in a normal way from the innominate artery, has an origin from the left side of the aortic arch so that the vessel must course upward and to the right, crossing the midline, to reach its normal exit on the right side of the thoracic cage. In doing so, the vessel presses on the esophagus and produces symptoms at times. Surgical therapy consists of division of this anomalous vessel.[22]

Most of these conditions can be diagnosed with accuracy by the instillation of contrast media in the trachea and esophagus.

Coarctation of Aorta.—Coarctation of the aorta is a narrowed or completely obstructed area of the aorta. It has been classified as infantile or adult in type. A good deal of overlapping of the two types exists, and this arbitrary classification is rather useless from a surgical viewpoint.

Surgical intervention in this disease was first suggested by Blalock and Park,[6] and first performed on the human by Gross[20] in this country and Crafoord[14] in Sweden. Operation offers much hope to patients with this malformation. Reifenstein, Lavine, and Gross,[30] from a study of cases of coarctation of the aorta in order to determine the outlook for patients with this malformation, determined that subjects could be placed in one of four groups: (1) about one-fourth live far into adult life and old age with little or no incapacitation; (2) about one-fourth die from bacterial endocarditis or aortitis at an average age of twenty-eight years; (3) about one-fourth encounter sudden death from rupture of the aorta at an average age of twenty-seven; (4) about one-fourth die because of the hypertensive state from congestive failure at an average age of thirty-nine or from cranial hemorrhage at an average age of twenty-eight. Thus, in summary, it might be said that the average age of death of the patient with coarctation is thirty-five, including those patients who died from incidental causes. In those who die from coarctation or one of its complications, the average age at death is about thirty.

Operation for correction of this abnormality is successful and should be done. It is important to note that in young subjects with coarctation the pressures in the arms may be normal or slightly elevated, whereas in older persons one may find hypertension of moderate or marked degree. Once the diagnosis is made, it is my feeling that operation should be undertaken whether hypertension is marked or absent.

The operation that has been done to date has been a resection of the coarctation with an end-to-end anastomosis of the aorta. A patent ductus, if present, should be transected and ligated also. Gross recently has reported on the use of arterial grafts in the cases of coarctation in which it is impossible to bring the two ends together. In this recent report of Gross's,[23] he reports 100 coarctations in which surgical exploration was carried out in ninety-one. Eleven deaths have resulted, of which seven were felt to have been preventable by certain changes in surgical techniques, or which could have been prevented by declining operation in view of the presence of certain co-existing cardiovascular complications. All in all, the procedure of resection and end-to-end anastomosis of the aorta is a tried and thoroughly successful procedure.

Anomalies of the Aortic Valve and the Ascending Aorta.—Congenital aortic stenosis may be caused by an abnormal calcification of the aortic valves. Subaortic stenosis is caused by the persistence of a band or membrane of connective tissue which lies immediately beneath the aortic valves. It may be possible to section these obstructive mechanisms by the use of a valvulatome. Smithy,[33] before his untimely death, had perfected an experimental technique for aortic valvulotomy. It may indeed be possible in the future to section a stenosed aortic valve.

Malformations Which Deprive the Body of an Adequate Amount of Oxygenated Blood

The Tetralogy of Fallot.—Another brilliant chapter in the treatment of congenital heart disease was written by Blalock and Taussig.[7] The description by Fallot of a combination of anatomical abnormalities served to focus attention upon certain patients in the so-called "cyanotic group" of congenital heart disease. In this condition there is pulmonic stenosis or atresia, an interventricular septal defect, an aorta which overrides the septal defect and right ventricular hypertrophy. The severity of the cyanosis depends, in addition to other conditions, upon the degree of the pulmonic stenosis and the degree of overriding of the aorta. It is known that at least 5 grams of reduced hemoglobin per 100 cubic centimeters of circulating blood are necessary in order to produce obvious cyanosis.

The most important element of the contribution of Blalock and Taussig is the conception of the part played by an inadequate pulmonary flow. As a result of this, they postulated that the cyanosis and disability could be relieved by improving the blood supply to the lungs by anastomosing a systemic artery to a pulmonary artery. The proof of the correctness of this postulate lies in the good results of their operation. Cyanosis is often completely relieved and is always greatly lessened when a satisfactory anastomosis is possible; the disability is also greatly relieved. As the venous-arterial shunt persists, it may be impossible, except in the slighter cases, to relieve the cyanosis completely, at any rate after exercise.

There is no place where greater co-operation is necessary between internist, roentgenologist, anesthetist, nurse, and surgeon than in the treatment of this anomaly. Team work is essential. With the introduction of cardiac catheterization, it was assumed that this would be the entire answer to diagnosis. However, we now know that the information afforded by cardiac catheterization is essentially complementary to other investigations.

The essential criteria for successful completion of the operation on a patient are: (1) the primary difficulty must be lack of adequate pulmonary blood flow; (2) there must be a pulmonary artery to which the systemic artery can be anastomosed; (3) a systemic artery must be available for anastomosis; (4) the difference in pressure between systemic and pulmonic circulation must be such that blood will flow from aorta to pulmonary artery; (5) lung structure must be such that the patient can survive collapse of one lung and occlusion of one pulmonary artery; (6) the structure of the heart must be such that it can adjust to the altered circulation.

Having satisfied these postulates one may now choose various procedures. Blalock's preference has been the anastomosis of a subclavian artery to the pulmonary artery in an end-to-side manner. At times he has used the innominate or carotid artery. However, the mortality with use of the latter is rather high. Potts[29] has introduced a modification which utilized an ingenious clamp for direct anastomosis of the aorta to the pulmonary artery. The great advantage of the Potts operation lies in those cases in which the subclavian artery is too small or too short. Our experiences with the Potts procedure, though limited, suggest that it isn't technically very difficult to do. On the other hand, if it is possible to perform a Blalock type of operation, it would appear unjustifiable to choose deliberately to use the aorta instead.

Although pure valvular stenosis does occur in Fallot's tetralogy, it is certain that infundibular stenosis is more common. A moment's reflection shows that if it were possible to relieve this infundibular stenosis directly, it would be far better than short-circuiting it as in Blalock's operation. Brock,[8] of England, suggests another important advantage would be conferred by the operation. In Fallot's tetralogy, the cyanosis and disability are due to two things—the pulmonary stenosis, which allows too little blood to go to the lungs, and the septal defect with an overriding aorta which allows a mixing of venous with arterial blood. The Blalock operation increases the blood supply to the lungs, but does not relieve the right-to-left intracardiac shunt. If the pulmonary stenosis is severe, the blood in ventricular systole cannot pass quickly enough into the pulmonary artery, and must be diverted into the overriding aorta; if the degree of pulmonary stenosis is slight, a far greater portion of the blood can pass into the pulmonary artery, and a correspondingly smaller amount passes into the aorta. The effect of direct operation upon the pulmonary stenosis, and of relieving the obstruction to the outflow of the right ventricle will be not only to increase the amount of blood going to the lungs, but to lessen the amount passing through the shunt and causing venous arterial mixing. On this basis Brock has now operated upon five patients, and either resected a portion of the infundibular wall or dilated the stenosis manually.

Defective Development of the right ventricle and Tricuspid Atresia.—Inasmuch as the primary difficulty is lack of circulation to the lungs and the pulmonary pressure is low, the operation developed by Blalock and Taussig may prove of benefit in this condition.

Pure Pulmonary Stenosis.—In its simplest form, pure pulmonary stenosis may consist of a pure valvular stenosis with no interventricular septal defect. In most of these cases, cyanosis is absent or slight. The most frequent complication is the gradual production of a right heart failure. The correct treatment for this condition is relief of the valvular obstruction by valvulotomy. Brock has recorded five successful transventricular valvulotomies. The specially designed valvulotome is inserted in the right ventricle and passed up into the pulmonary artery.

Complete Transposition of the Great Vessels and the Common Associated Anomalies.—Complete transposition of the aorta and pulmonary artery is a congenital anomaly that is relatively common. In this abnormality, the aorta arises from the ventricle receiving oxygenated blood. Blood that is pumped by the left ventricle through the pulmonary artery to the lungs returns by the pulmonary veins and left auricle to its point of origin in the left ventricle. In other words, there is transposition of the great arteries without transposition of the great veins. Generally speaking, there is some degree of communication between the two arculations by way of septal defects or other abnormalities.

Blalock recently has subjected a group of patients with transposition to surgery. The operations fell into three main groups:

1. The construction of extracardiac shunts, either venous or arterial.
2. Creation of an auricular septal defect.
3. Combination of these two methods.

Blalock states that the combined procedures seem to offer likelihood of improvement. Though most of the patients have survived the operative procedure itself, the postoperative mortality is high. However, some hope to these unfortunate individuals is offered by the fact that some improvement has been made.

Anomalies of the Venous Return.—On occasion one of the pulmonary veins may enter the right auricle. This condition may not necessarily cause any immediate concern, but as adulthood is reached, an added strain may be put on the heart. The diagnosis is essentially one of cardiac catheterization. If and when this is made, surgical intervention is indicated. The vein is ligated or the lobe of lung, which it is draining, removed —probably the latter.

It must be added here, that the association of interauricular septal defects with this other anomaly is frequent. We have had occasion to explore a case of anomalous pulmonary vein, only to find that the catheter had passed through the septal defect into the normal opening of the vein in the left auricle.

Acquired Abnormalities

Sequelae of Rheumatic Heart Disease

Mitral Stenosis.—The need for a safe technical approach to the surgical treatment of chronic valvular disease of the heart has been recognized for many years. The idea is not new, as the surgical treatment of mitral stenosis was first suggested by Brunton[9] in 1902. In 1913 Dogen attempted actual dilatation of a stenosed pulmonary valve. In 1929 Cutler and Beck[15] summarized their personal experiences in the surgical treatment of eight cases of mitral stenosis and added four collected cases of chronic valvular disease subjected to operation. The mortality for the entire group was 83 per cent. Since that time much progress has been made in the field of thoracic surgery. These advances, combined with recent developments in chemotherapy and a sounder present-day concept of the prevention and treatment of shock, minimize many of the former hazards, and should permit reapplication of certain methods with significant reduction in mortality.

Valvulotomy.—Anatomically, the stenosed mitral valve can be reached by a suitable instrument by way of either the left ventricle or left auricle. It is not yet entirely clear as to which is the better approach. Objections have been raised as to the thinness of the auricular appendage wall. Our experiences with this segment of auricle have been that, quite the contrary, it is at times most thickened. Another objection has been the posterior position of the left auricle. Our experience in operating on patients with mitral stenosis, in order to ligate the auricular appendage, has been, that with extreme cardiac enlargement, the greatly dilated left atrium pushes the appendage anteriorly into the operative wound. With a curved valvulotome, much after the type that Harken has used, we are proposing to enter the left auricular chamber rather than the ventricle. In order to enter the left auricle by way of the left ventricle, it is necessary to dislocate the heart, which may lead to irregularities.

Valvulotomy has been performed recently by Harken, and Smithy. Sections of the leaflets are removed, particularly the posterior leaflet, Harken reports valvuloplasty in two patients with one death, while Smithy reports the successful excision of a segment of the stenosed mitral leaflet in three of seven patients. It is interesting to remark that one of his successful results is a technician now working in a Saint Paul hospital.

The exact indications for any procedure on the rheumatic mitral stenosed heart are not exactly clear yet. We wil not go into this, as we feel that a careful discussion by surgeons and internists is in order before definite conclusions can be reached. However, it is our feeling that this must be done soon, as surgery has definitely something to offer the patient with rheumatic mitral stenosis who cannot be controlled medically.

Commissurotomy.—In resection of part of the stenosed mitral valve, one inevitably creates an insufficiency. Are some types of insufficiency better borne than others? Ideally, surgical intervention should restore perfect valvular action; then the correction of obstruction in the light of the associated degree of insufficiency that is immediately produced, would not come under consideration. Bailey has approached this problem by an ingenious method of dividing the mitral valve at the fused commissures under digital control, a procedure which he has called commissurotomy.

Interatrial Septal Defect.—The interesting observation first reported by Lutembacher, that patients with mitral stenosis who have a co-existing patent interauricular septal defect, do not usually suffer from paroxysms of pulmonary edema, has led to the suggestion that such a defect might be created artificially in cases of mitral stenosis. Harken has created a defect in humans by means of a specially devised valvulotome. Blalock has attempted this procedure and used it in cases of transposition of the great vessels. We have experimentally used the approach of anastomosing the auricular appendages, either directly or by means of a vein graft.[32] By this method the interauricular defect, which is in effect produced, can be made under direct vision and can be broken down immediately, should the condition of the patient warrant it.

Pulmonary Vein to Azygos Vein Anastomosis.—Sweet[34] as used still another approach. He has anastomosed the superior segment branch of the inferior pulmonary vein to the azygos vein, thus creating a communication between the systemic and pulmonary circulations. Whereas the pulmonic circulation is a closed circuit, the systemic venous return is not; thus the right pressure within the left auricle can be distributed over a greater area.

Sympathectomy.—Some cases of mitral stenosis may not be considered candidates for cardiac intervention. This category includes patients whose incapacitating symptoms, particularly attacks of pulmonary edema, are associated with rapid heart action that cannot be controlled by medical measures. For this group of patients, a palliative procedure may be the removal of the cardiac sympathetic accelerator and afferent nerves.

Ligation of Auricular Appendage.—One of the most common causes of peripheral arterial emboli is rheumatic mitral stenosis. This disease occasions a showing of blood within the left atrium and left auricular appendage. This stasis of blood, coupled with auricular fibrillation, leads frequently to thrombus formation in the left atrium. These thrombi are the most common antecedents of peripheral emboli in rheumatic heart disease. The most common location of a thrombus in the left atrium is the left auricular appendage. Surgical efforts in eliminating embolization from this source, subsequent to rheumatic mitral stenosis would be of benefit.

Following preliminary animal experiments, simple ligation of the appendage at its junction with the left atrium was performed in three patients.[2] All of these patients had evidence of embolization and rheumatic mitral stenosis. In two of the patients, a total of three successful embolectomies of the extremities were performed previous to the auricular appendage ligations. The patients all withstood the procedures with surprising ease and the postoperative convalescence was uneventful.

Coronary Heart Disease

Interest in the surgical approach to the problem of coronary heart disease was stimulated by Claude Beck,[4] who formulated the concept of the "trigger zone" of myocardial anoxemia and of a prophylactic "blood bath" to such a functionally impaired area. He emphasized the fact that complete occlusion of all branches of a coronary artery, however small, supplying a given area of the heart resulted in far more rapid and irreversible damage to myocardial function than partial occlusion of much larger vessels.

Beck's first operation involved covering the heart with a flap of the pectoralis major muscle and suturing it to the parietal pericardium, using the vessels of that muscle as a source for a collateral blood supply. In subsequent studies he effected a new blood supply to the heart through vascular adhesions resulting from mechanical abrasion and chemical irritants.

O'Shaughnessy[28] used the omentum as a source for a collateral blood supply, bringing it up through the diaphragm and suturing it to the surface of the heart. Lezius,[26] on the other hand, utilized the lower or middle lobe of the left lung as a source for collateral blood supply. More recently, Carter[11] of Cincinnati has utilized the same approach.

Fauteux,[16] although not attempting to produce collateral coronary circulation, sought to relieve the symptoms of coronary heart disease by combining coronary vein ligation with pericoronary neurectomy. This, in effect, allows for arterial blood stasis, and therefore, absorption of more oxygen by the myocardium.

Recently Beck has utilized a new principle in treatment of myocardial infarction. Utilizing the coronary sinus as a new arterial pathway he has anastomosed a segment of artery to this channel as a direct bridge between the aorta and coronary sinus. It is his finding that a real revascularization of the heart takes place—blood getting into any ischemic area by the "back door," so to speak.

It must be finally mentioned that excision of infarcted areas of myocardium may be a therapy of the future. Murray found that in experimentally produced cardiac infarction, the infarcted area became dilated and functionally ineffectual from the time of arterial occlusion. By controlling the dilatation by excision of the dilated area and immediate suture, he was able to save the lives of many of his animals.

Constrictive Pericarditis

This acquired disease of the pericardium has succumbed to surgical intervention. When the diagnosis is made, and the sometimes associated tubercle bacillus found, then streptomycin and early operation are indicated. The results to date have been excellent. In a recent follow-up of eleven cases followed up to eleven years postoperatively, the majority of the patients, in whom a good decortication was possible, are at full work.

Pump Oxygenators

Finally we come to the ultimate in cardiac surgery—the extra-corporeal heart. By this method it will be possible to completely by-pass a bloodless heart and yet pump oxygenated blood into the arterial system. Through the ingenious efforts of Gibbon, this work was begun in 1939, and is still continuing. Dennis has been working on a similar machine. It can be said that the solution to this most amazing problem will surely come in the near future. Both of these workers have been able to keep animals alive for periods of time. There are problems still to be solved before a fool-proof apparatus is available.

Summary

A summary of some of the work on cardiac and juxta-cardiac surgery is presented. Surgery within this field is progressing rapidly. It is essentially due to the great progress made in the physiology of the chest and in vascular techniques. A co-operative spirit between all members of the medical profession concerned in the care of individuals with acquired or congenital heart disease is a necessity in the furtherance of this field. The future of cardiac surgery holds great promise as shown by the studies made in experimental surgery of this type.

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BANTI'S DISEASE

Report of Two Cases Treated by Splenectomy and Later Gastrectomy

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THE purpose of this paper is to evaluate the various treatments of Banti's disease and cirrhosis of the liver. Really, what will be discussed is the treatment of portal hypertension and its sequelae.

Portal hypertension has been divided into two main groups (Whipple): those having intrahepatic block and those having extrahepatic portal block. In the first group is included the cirrhoses and in the second group cases of fibrous replacement and/or thrombosis of the portal vein or of a main tributary, cavernous transformation of the portal vein or its tributaries, stenosis of the portal vein, et cetera. Banti's disease belongs in the second group.

In 1894 Banti described the symptom-complex which bears his name. There are three stages of the disease: (1) the anemic phase, with splenomegaly, asthenia, and occasional gastrointestinal hemorrhages; (2) transitional stage, with oliguria, urobilinuria, hepatomegaly, pigment disturbances of the skin and increasing gastrointestinal disturbances; (3) ascitic stage, with atrophy of the liver, hemorrhage, and death.

It is interesting that one of the workers in Aschoff's laboratory studied the original sections of the spleens described by Banti and found no difference between them and those of Laennec's cirrhosis. It is often stated that Banti's disease is just another phase of cirrhosis of the liver. In Banti's disease the "cirrhosis" starts in the spleen and then goes to the liver, while in Laennec's cirrhosis, the fibrosis starts in the liver and ends up in the spleen. While it is true that late cases of Banti's disease and cirrhosis may be indistinguishable, certainly earlier in the disease, the enlargement and fibrosis may be limited to the spleen with no appreciable involvement of the liver.

As to etiology, Banti's syndrome may be caused by various mechanical disturbances of the portal system. These have been listed by Baronofsky as follows:

1. *Thromboses of the splenic and/or portal veins.* (Warthin, 1910, Opitz, 1924, Rosenthal, 1925, Wallgren, 1927, Wilson and Lederer, 1929, Noble and Wagner, 1933, Mallory, 1934, Smith and Farber, 1935, Klemperer, 1938.)
   - (a) Various inflammations of the upper abdomen (pancreatitis, et cetera).
   - (b) Acute infectious diseases.
   - (c) Infectious processes in spleen itself.
   - (d) Primary degeneration in vein wall akin to atherosclerosis of arteries.
   - (e) Trauma.
2. *Cavernomatous transformation of the portal vein.* Beitzke (1910) and Hart (1913) were of the opinion that this is a typical congenital malformation. Risel (1909), Verse (1910), and Emmerich (1912), believed that the cause of this must be sought in a thrombosis of the portal vein followed by organization and recanalization. Pick (1909) on the other hand argues that this is a neoplastic lesion, an angioma, or cavernoma of the hepatoduodenal ligament, inasmuch as in some cases the process extends far beyond the limits of the portal vein.
3. *Stenoses of the portal vein.* (Leon-Kindberg, 1914.)
4. *Compression of the portal or splenic veins from without.*
   - (a) Adhesions from previous peritonitis (Smith and Farber, 1935).
   - (b) Enlarged lmyph nodes (Smith and Farber, 1935).
   - (c) Gallstones (Armstrong, 1906).
5. *Congenital narrowing of the portal bed in liver.* (Moschokowitz, 1917.)
6. *Cirrhosis of the liver.*
7. *Congestive splenomegaly without cirrhoses.* (Rolleston, 1914, Larrabee, 1934, Eppinger, 1937, Rousselot, 1940.)

What causes death in the late stages of Banti's disease and cirrhosis of the liver? First: hemorrhage. In reviewing the cases of cirrhosis of the liver and Banti's disease seen at Ancker, Bethesda,

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Presented before the Minnesota Academy of Medicine, Saint Paul, Minnesota, December 14, 1949.

One of the best reviews on portal hypertension is that by Baronofsky.[2] His paper has been widely quoted in this article.

TABLE I. INCIDENCE OF HEMATEMESIS IN BANTI'S DISEASE AND CIRRHOSIS OF THE LIVER

Hospital	No. of Cases	Hemorrhage	Died	Died of Hemorrhage
Ancker	231	29	—	20
Bethesda	49	8	15	7
Miller	45	8	—	—
St. Joseph's	83	32	35	16

Miller and St. Joseph's Hospital, Saint Paul, Minnesota, over a ten-year period, it was noted that of patients who came in with hematemesis, over half die from this complication (Table I).

Secondly, some patients with Banti's disease and cirrhosis of the liver die of hepatic insufficiency. Hepatic insufficiency greatly increases the risk of any surgical procedure. It is well known that such patients do not stand anesthesia well. Cirrhosis of the liver with ascites is not a contraindication to surgery as hepatic insufficiency may not follow for a long time.

Thirdly, some of the patients with Banti's disease succumb to intercurrent infection.

It is important to know how long a patient will live with Banti's disease or cirrhosis of the liver without any treatment. This is impossible to state as there is no series in the available literature in which such cases have been followed from onset of the disease until death. After all, the cause of these conditions is not known. All the physician can hope to do is to reverse or stop the progress of the liver damage if it is not too far advanced by means of diet, vitamins, et cetera. All the surgeon can hope to do is to decrease the portal hypertension or to control hemorrhage from bleeding "esophageal varices." The surgeon should always attempt to have the patient live more comfortably if not longer.

The treatment of Banti's disease and cirrhosis of the liver is aimed at the alleviation of the portal hypertension or its sequelae. One of the most serious of these sequelae is hemorrhage from ruptured esophageal varices. This complication may be treated:

1. Conservatively, by blood transfusion, sedation, et cetera, in the hope that the bleeding will stop by itself.

2. Tamponade. By balloon attachments to a Miller-Abbott tube it is hoped to exert pressure on the bleeding esophageal veins and thereby control hemorrhage. However, it is difficult to place or hold the distended balloon accurately. While an occasional brilliant result is seen, the method is unsatisfactory at present in most instances of bleeding esophageal varices.

3. Injection of esophageal varices. This method was first introduced by Crawford and Frenckner of Sweden in 1939, and popularized in this country by Moersch. The method is akin to the injection treatment of varicose veins of the extremity. It requires skill with the esophagoscope, is at best palliative, and is of little value if the vein is actively bleeding.

To relieve portal hypertension in cirrhosis and Banti's disease, the following methods have been proposed:

1. Talma-Morrison operation. In this operation, an attempt is made to shunt the blood from the portal to the systemic circulation by suturing the omentum to the anterior abdominal wall; by forming adhesions between the liver and the spleen with the vault of the diaphragm on the anterior abdominal wall, and between the gall bladder and the anterior abdominal wall. As compared to control series, the patients do not live longer nor do they show marked improvement; therefore, the operation has been largely abandoned.

2. Splenectomy. The rationale of splenectomy in the treatment of portal hypertension is that removal of the spleen decreases the circulatory portal blood volume. It is commonly said that splenectomy removes 40 per cent of the portal blood volume. Probably more correct is the statement that in normal animals the stomach and spleen together supply about 40 per cent of the portal blood, the spleen itself about 18 per cent. Removal of the spleen could conceivably do some good in early cases of Banti's disease due to thrombosis limited to the portal vein. As a means of controlling hemorrhage from esophageal varices, splenectomy leaves much to be desired, as in the cases of Banti's disease treated by splenectomy over a ten-year period at Ancker, Bethesda, Miller, and St. Joseph's Hospital, Saint Paul, over half had hematemesis afterwards. The fact that one patient had hemorrhages twenty-four years and another eighteen years after splenectomy shows the necessity for studying these patients over a long period of time (Table II).

3. Eck fistula. In anastomosing the portal vein and inferior vena cava (Eck fistula) the passive congestion of all structures drained by the portal system is relieved. There are several bad features of this operation however.

TABLE II. HEMATEMESIS AFTER SPLENECTOMY IN BANTI'S DISEASE

Hospital No.	Sex	Age in Years	Splenectomy	Post-operative hematemesis	Course
Miller Hospital					
A-20290	F	40	+	−	L & W—2 yrs.
A-23086	F	51	−	−	L & W.
A-2708	F	60	−	−	Died hemorrhage.
A-36287	F	27	+	+	Hemorrhage off and on 18 yrs.
A-1144	F	15	+	+	Died hemorrhage and ascites 4 yrs. later.
St. Joseph's Hospital					
D-12318	F	36	+ 1941	+	Died 1-19-47, Hemorrhage.
D-48314	M	21	+	+	Died 13 mo. later Hemorrhage.
Ancker Hospital					
A-26165	M	16	+	+	Died 2 yrs. later Hemorrhage.
A-33489	M	17	+	−	P. O. peritonitis.
A-149017	M	44	+	−	L & W—3 yrs.
A-126046	M	50	+	−	L & W—5 yrs.
Bethesda Hospital					
178064	M	19	−	+	Bleeds off and on 12 yrs.
181572	M	28	+	+ 48 hrs.	90% gastric resection.

(a) Follow-up study of patients so treated has shown that some of the patients have had episodes of bleeding since operation and post-mortem examinations on some have shown occlusion of the anastomosis.

(b) In some cases fibrous or cavernomatous transformation of the portal vein has made the likelihood of being able to anastomose either the main trunk or one of its larger tributaries with the inferior vena cava, even with utilization of a vein graft, improbable.

4. Splenorenal anastomosis. Anastomosis of the splenic vein to the renal vein reduces the portal hypertension, but the following objections have been raised against this procedure:

(a) The operation may mean the sacrificing of a normal kidney, although by the use of an end to side anastomosis, it is not necessary to sacrifice the kidney.

(b) In a certain number of cases, thrombosis occurs at the site of anastomosis.

(c) In removing the lumbar veins, more collateral circulation is often removed than is obtained by the splenorenal anastomosis (Learmonth).

5. Gastric resection. Before considering the rationale of gastric resection to relieve portal hypertension, the question of the source of hematemesis in portal hypertension should be discussed. It is generally thought that the hematemesis comes from bleeding esophageal varices. The varices may bleed as a result of injury. It hardly seems reasonable to assume that the mere hydrostatic distention of these veins and their eventual rupture is the sole cause of the hematemesis (Baronofsky). In some instances, there are no demonstrable lesions in the esophagus, but ulcers or erosion of the cardia are present. There is no good statistical evidence how often this occurs. It is interesting that duodenal ulcers are often found at post-mortem examination of cirrhotic patients who have died of hemorrhage from ruptured esophageal varices. Of three patients at Bethesda Hospital who died of the above condition, all had chronic duodenal ulcers. However, at Ancker Hospital, of forty-five patients with cirrhosis and esophageal varices, only two had duodenal ulcers at death. How often duodenal ulcers occur in hepatic disease is not known. This incidence of duodenal ulcer in cirrhosis is mentioned not so much as a source of hematemesis as to emphasize the possible gastric acidity factor in injuring the esophageal and duodenal mucosa.

Regurgitation of gastric digestive juice into the esophagus is not an uncommon occurrence. That acid has a harmful effect on a decreased or injured esophageal mucosa is well known (Friedenwold, Feldman, and Zinn). Baronofsky and Wangensteen have shown that with impairment of the nutrition of the mucous membrane of the stomach, duodenum and esophagus due to venous pooling, these areas are lowered in resistance and will be easy prey to the gastric digestive juices. Wangensteen and Baronofsky in their experimental work on portal hypertension explored the following theses:

1. If the acid peptic factor of gastric secretion is important in the causation of erosions in the esophagus, then extensive or total gastrectomy would eliminate this.
2. If the stomach drains into the portal circulation and the esophagus into the caval, and there is a communication between the two, then isolation of the esophagus from the portal circulation by means of gastrectomy should prove satisfactory in preventing hemorrhage.
3. If extensive gastrectomy were done, there would be an additional reduction of blood inflow into the portal system over the attending splenectomy.

Baronofsky found that in the presence of portal hypertension in dogs an extensive (90 per cent) gastric resection afforded real but not absolute protection against histamine-provoked ulcer. Normally, 75 per cent gastric resection affords protection against histamine-provoked ulcer, but this percentage affords no protection in the presence of portal hypertension.

Clinically, Wangensteen has stressed that one must perform a total gastrectomy to afford absolute protection against the esophageal bleeding in portal hypertension. Also, one must take into consideration the liver function of the patient. Of eight patients with portal hypertension treated by gastric resection, four died, three having a definite impairment in liver function.

Phemister and Humphreys performed a total gastrectomy and an esophagogastric resection for bleeding due to Banti's disease. Esophagogastric resection is a more direct approach to management of esophageal varices as it separates the esophagus completely from the higher venous pressure of the portal circulation. Wangensteen's idea of the amount of stomach that it is necessary to remove is physiologically sound and is of clinical value. When, on exploration, the liver appears normal, as it usually does in Banti's disease, the measurement of the venous pressure in one of the tributaries of the portal vein is important. In thrombophlebitis of the portal vein, the venous pressure will be up, whereas in bleeding from a silent, nonpalpable gastric erosion, the venous pressure will be normal. For the latter type of case, the conventional 75 per cent gastric resection is adequate; for the portal hypertension, at least a 95 per cent resection should be done (Wangensteen).

It should be recorded that a subtotal esophagocardiectomy does not control hematemesis in Banti's disease. Scott and Longmire report such a case, in which later a total gastric resection was performed, eliminating all signs of hemorrhage from the intestinal tract.

Two cases of Banti's disease are presented which were treated by splenectomy and finally a gastric resection.

Case 1.—The first patient was a white man, thirty-seven years old. At the age of seven years, his spleen was removed for "splenic anemia." Six weeks before admission to the hospital he had a gastrointestinal study because of epigastric distress, fullness and loss of appetite. The x-ray report states that he had active duodenal ulcer. The day before admission to the hospital, the patient had a hematemesis which, in spite of transfusion, sedation and rest, persisted. The preoperative diagnosis was bleeding duodenal ulcer. At operation, no ulceration could be felt or seen in the duodenum or stomach. At the esophagocardial junction were large varices. The bleeding from esophagus was so profuse that it was packed temporarily with gauze to partially control it. A total gastrectomy was performed anastomosing the jejunum to the esophagus with an entero-enterostomy between the limbs of the jejunum. The patient made an uneventful recovery and has remained well and free from hemorrhage for three years.

Case 2.—The second patient was a twenty-seven-year-old man who had "spleen trouble and hemorrhages" since he was four years old. For two months before admission to the hospital he had noticed tarry stools and was weak. He was admitted to the hospital in shock after a massive hematemesis. The patient was transfused and his general condition improved. On August 26, 1949, a splenectomy was performed. An 800 gram fibrotic spleen was removed. The liver appeared normal. Within forty-eight hours after splenectomy the patient had hematemesis which practically exsanguinated him. He was transfused until his blood pressure, pulse and hemoglobin were at normal level, and on September 6, 1949, a 90 per cent gastric resection was performed. Dilated esophageal veins were noted at operation. The patient has had no more hemorrhages three months after the resection.

Summary

The current ideas concerning the treatment of portal hypertension have been reviewed. In early cases of Banti's disease due to thrombosis or

thrombophlebitis of the splenic vein, splenectomy may be curative; however, splenectomy for hemorrhage due to bleeding esophageal varices in Banti's disease or cirrhosis of the liver is of questionable value.

From an anatomic and physiologic point of view, a total gastric resection or esophagogastrectomy is the procedure of choice in the treatment of bleeding esophageal varices or lesions of the cardiac end of the stomach in cirrhosis of the liver or Banti's disease.

How to evaluate an Eck fistula or splenorenal anastomoses in the treatment of portal hypertension is difficult, as not enough time has elapsed to indicate the eventual outcome. The objections to these procedures have been discussed.

Two cases of Banti's disease are reported which had been treated by splenectomy before a gastric resection was performed to control hematemesis. While these patients have been followed only three months and three years respectively, the results are encouraging enough to warrant gastric resection in such patients in the future.

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Discussion

Dr. Ivan D. Baronofsky (by invitation): I have very little to add to Dr. Rea's excellent discussion of the subject. Dr. Rea is to be congratulated on his excellent results in the treatment of such a fatal disease. I should like to present some of the experimental work that was done while at the experimental surgery laboratory at the University, under Dr. Wangensteen. Before I begin, I should like to mention that Dr. Longmire, while at the Johns Hopkins Hospital, recently included a series of some sixty total gastrectomies. One of these gastrectomies was done for portal hypertension and bleeding. In the laboratory, experiments were carried out on dogs and on animals that were usually resistant to the effects of histamine and beeswax, such as the rabbit. (Slides shown) In the rabbit it has been practically impossible to produce peptic ulcer or erosion by means of histamine and beeswax. Dr. Lannin was finally able to produce these lesions only when the animals had been on a carrot juice diet for a period of at least two weeks. The reason for the inability to produce ulcers, without that type of diet, is probably that the rabbit's stomach is always filled with food. This food absorbs the acid secretions and therefore this erosive factor is not effective.

(Slides shown) Here is a slide that shows the effect of portal hypertension on a rabbit's stomach. This animal, in addition to the splenic tie procedure, has had histamine and beeswax for three days. As you can see there are multiple bleeding points and ulcers in the entire specimen. A word here about the splenic tie procedure. In some of the animals, if the splenic vein is ligated distal to its junction with the gastroepiploic vein, the blood will get back to the heart by way of the esophagus and in effect a portal hypertensionlike syndrome is produced.

We then put this thesis to work in the dog. In Dr. Wangensteen's laboratory it has been found that in order that complete protection from the ulcer diathesis be obtained, one must do the following things in a gastric resection for peptic ulcer: (1) a 75 per cent gastrectomy, (2) removal of the antrum, (3) removal of the entire lesser curvature, (4) a short loop anastomosis. When these criteria were applied to a dog with a splenic tie and the dog was given histamine and beeswax for three to five days, no protection was obtained. In other words portal hypertension greatly accelerated the ulcer diathesis. In fact so much so that a normal dog will easily get ulcers in five days if cellophane is placed around the portal vein.

We then came to the conclusion that in portal hypertension an even greater resection would be necessary. We therefore gave a series of sixteen animals that had had a 90 per cent resection and splenic tie procedure, histamine and beeswax for a period of five days. All the animals except two were protected against the ulcer diathesis. In other words a 90 per cent resection could afford protection in the great majority of animals, but not all. One must therefore do either a total gastric resection or something closely akin to such a procedure, in order to protect against the bleeding ulcer diathesis associated with portal hypertension. In addition to removing the stomach, the spleen is also removed. Thus, three things are accomplished: (1) the acid peptic factor is removed, (2) there is a separation of the stomach and portal blood flows, (3) about 40 per cent of the inflow of the portal vein is removed.

Dr. C. J. Watson: This is a subject I have been interested in for a long time. I was glad Dr. Rea pointed out that there is such a thing as primary splenic fibrosis. In recent years, clinicians and pathologists alike have often said that what we have called Banti's disease is simply a congestive splenomegaly. Granting that this is true in the majority of cases, I have nevertheless seen a number of instances of diffuse splenic fibrosis with esophageal varices in which there was no evidence of cirrhosis of the liver, nor of disease of the portal vein. I believe, therefore, that there is a relatively small group of cases of primary diffuse splenic fibrosis. I recall one young man about twenty years of age with a large spleen and repeated hematemesis. Liver function was quite seriously disturbed (this case was studied in the days before we were doing liver biopsies). He died, and at autopsy his liver appeared histologically normal. No evidence of disease in the portal or splenic vein was found, but he did have esophageal varices.

The rationale of gastric resection for hematemesis due to bleeding varices is quite interesting to me. I can remember quite a number of instances of bleeding varices seen at autopsy; if one does find the place that bleeds, it is usually nothing more than a little slit in the varix. If one ties off the great veins *in situ* before the gastrointestinal tract is opened, one has a much better chance of finding the bleeding varix. I have yet to see a peptic ulcer or anything resembling it in a bleeding esophageal varix, although it is true that a few such instances have been recorded. I would say that, by and large, the cause of bleeding from an esophageal varix is an injury of the wall of the vein. With the little protection these veins have, it is not too remarkable that a slight injury can cause a tear or slit sufficient to produce a massive hemorrhage. It should be noted that these patients commonly have hypoprothrombinemia and/or thrombocytopenia, to contribute to further bleeding, once started.

To try to carry out any major surgical procedure in a patient with cirrhosis of the liver is to invite disaster. They do not tolerate anesthesia or prolonged operations at all well. They easily develop hepatic coma after a surgical procedure. I think it necessary to wait a long while and accumulate a large series before any individual method of treatment of bleeding varices can be judged. It is well known that there may be long intervals, even several years, between bleeding episodes in these cases.

Cirrhosis may be present for years in relatively static condition. Ascites, with or without jaundice, no longer offers the fatal prognosis in all cases, which used to be assumed. In fact, cirrhosis isn't quite as bad as we used to think it was. The fatty cirrhosis group, related to alcoholism and dietary deficiency, responds remarkably well to a good diet, if not too far advanced. The bleeding varix problem, however, is a bad one, and we don't have very much to do for it medically. The suggestion has been made that direct tamponade of the varices by means of an inflated condom type balloon might be effective, and in fact, I believe that Dr. Hoffbauer has been successful in stopping bleeding with this method, in some cases.

Dr. Clarence Dennis: I would like to ask if you have any information on liver function after anastomosis of the portal vein and the vena cava.

Dr. Watson: Not a great deal. Dr. Hanger tells me that in some instances there has been a remarkable improvement in liver function, the cephalin flocculation and serum bilirubin at times decreasing significantly. Since Dr. Hanger is a very careful student of liver disease, I am willing to accept the idea that at least some of these individuals do have their liver function improved by diverting the portal blood flow.

Dr. Rea (in closing): The purpose of the gastric resection in bleeding varices would be: (a) to reduce the acid peptic factor of gastric secretion, which we know is important in the causation of erosions of the esophagus, and (b) to bring about an additional reduction of blood inflow into the portal vein over that attending splenectomy.

The source of hematemesis in portal hypertension is of interest. Bleeding esophageal varices are considered the most common cause. While esophageal varices may bleed from trauma, in the light of our experimental knowledge, it is plausible that gastric acidity may cause erosions of the esophagus and cardia of the stomach with resulting bleeding without any trauma factor. It should be noted that patients with obstruction of the superior vena cava exhibiting esophageal varices apparently do not bleed. Also it has been reported that patients with unrelated diseases like coronary disease may have esophageal varices.

Given a patient with bleeding esophageal varices, with fairly good liver function, if the bleeding could not be controlled by conservative methods, I should feel safer performing a total gastrectomy at the present time rather than doing any of the other procedures.

CANCER GRANTS TOTAL MILLION AND THIRD DOLLARS IN WEEK

Federal cancer grants totaling slightly more than one and one-third million dollars were announced in the last week. Seven universities and hospitals get $575,000 for construction of research, facilities, thirty-three schools get $522,000 for teaching purposes, and the remaining $301,159 goes for control projects in twelve states. Institutions sharing in construction grants are North Carolina University; South Carolina Medical College; Wayne University; Children's Medical Center of Boston; Beth Israel Hospital, Boston; Boston University School of Medicine; and Iowa State University, College of Medicine. . . . Over the past twenty-five months, U. S. has approved grants of $210,000,000 toward construction of 1,019 hospitals and health centers under the Hill-Burton Act; total cost of the projects is more than half a billion dollars, with the difference financed by state, local and private institutions. Only 139 of the institutions are in operation now, the remainder under construction or in the blueprint stage. . . . Water pollution grants to states and interstate agencies are expected to total just under one million dollars for the fiscal year ending June 30.—A.M.A., Washington Office, March 14, 1950.

PSYCHIATRY IN GERIATRICS

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BECAUSE of the scope of the problem of the aged, it is felt worthwhile to review certain psychiatric aspects of geriatrics.

It has been estimated[14] that whereas in 1900 4 per cent of the population of the United States of America were over sixty-five years of age, and in 1935 6 per cent, by 1980 approximately 14 per cent will fall in that age group. Between 1930 and 1940 the increase in persons over sixty-five was 35 per cent, whereas the increase in the general population was only 7.2 per cent. The United States Bureau of Census reported that in 1940 there were 8,956,206 persons more than sixty-five years of age.

"White men now at the age of sixty-five can expect to live an additional twelve and one-half years and white women an average of fourteen and one-half years."[19]

To quote Doll[5]: "Our goal should be to insure that the major share of added years will lengthen the period of prime rather than prolong the periods of dependent youth and decrepit old age. We may welcome rather than fear the prospect of long life only if the accumulated years are worth living by adding to the sum of usefulness and happiness of human life throughout its whole span."

Maladjustments and behavioral breakdowns, psychiatric problems, occur at a high rate in the age group sixty-five and over. These include the less severe psychiatric disorders such as maladjustments in the mentally normal, mental aberrations, benign abnormal sexual behavior, alcoholism, and certain psychoneurotic manifestations. More grave psychiatric disorders, such as frank psychoses and severe reactive depressions, also occur. Physical, social, and psychological factors are involved in their production.

As elsewhere in the body, certain alterations occur in the brain with advancing years. Numerous changes begin in all layers of the cerebral arteries.[1] The larger arteries show an extensive intimal arteriosclerosis and a medial fibrosis. Similar alterations occur in the smaller vessels. They lead to narrowing of the lumen of the vessel with resulting ischemia and encephalomalacia of the area supplied, and to increased fragility of the vessel walls. The meninges become thickened and opaque, and cerebral atrophy occurs, particularly in the frontal lobes. Diffuse nerve cell changes, senile plaques, and less frequently neurofibrillary degeneration as well as the vascular changes are seen microscopically.

Since some brains show more evidence of these changes at age fifty than others at age seventy-five, it is obvious that chronological age is not the only element at work here. Heredity as well as various other factors influence this aging process. These alterations need not lead to psychiatric symptoms.

Changes incident to aging of other parts of the body are important. Impaired absorption from an atrophic gastrointestinal mucosa and loss of teeth, with resulting undernourishment and vitamin deficiency, are significant as are decreased kidney function, endocrine imbalances[6] and auditory and visual impairments. Physical illnesses and injuries act as causative agents in psychiatric geriatric problems. They may precipitate the physical changes of the aging process in the brain and elsewhere in the body. Again they may be the direct etiologic factor of the disorder, as for example in psychoses due to brain trauma, due to brain tumor, and in many other psychoses of the organic reaction type.

Social elements play a role in producing maladjustments and behavioral breakdowns in the aged. The older person finds himself progressively shunted away from both his work group and his family setting. Employment is difficult for him to retain, and once it is lost, extremely hard to obtain. Members of his family group tend to scatter into distant areas. His friends and relatives progressively move away or die. He finds himself more and more without firm social ties.

One etiologic factor of a psychologic nature is the underlying personality makeup. It would appear that persons of a stable personality tend to withstand considerable amounts of cerebral damage and environmental pressure without exhibiting serious psychiatric manifestations, whereas individuals who have been poorly adjusted or inadequate earlier in life are more likely to fare

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Inaugural thesis presented at the meeting of the Minnesota Academy of Medicine, December 14, 1949.

badly under such attacks. Evidence is increasing that social and psychological factors are very significant in the etiology of these problems.[12,13,15,16,20]

Many persons live to advanced years with little apparent interference with their mental functioning. However, frequently simple adult maladjustment occurs in such persons. When it does, it resembles the same syndrome as seen in earlier periods of life. When mental changes do appear, they are of one or usually more than one of three types—intellectual impairment, affective abnormalities, and conduct disorders.

Certain alterations may be considered within reasonable limits to be evidences of normal aging. These limits admittedly are hard to define. They may be termed "mental aberrations." Some are essentially exaggerations of previously existing personality traits. The person fatigues very readily on physical or mental exertion. He is less alert, less able to concentrate over periods of time, less able to assimilate new knowledge, and less able to retain experiences of all types and to recall them at will. A narrowing of the span of interest and fixation of ideas, especially upon bodily health, may often be noted. Emotional instability may be exhibited in easy and excessive swings of mood, irritability, unwarranted feelings of well-being with boasting, or in some instances by more or less prolonged periods of mild depression. At times mild feelings of persecution or unwantedness, i.e., paranoid trends, may be seen. The attitudes of others may be a basis for these trends, or feelings of, or fears of his own disintegration with attendant anxiety may be projected into the environment. Overtalkativeness and reminiscing, selfishness and self-centeredness, resistance to change and willfulness may be apparent. Abnormalities in eating habits, including overeating or refusal to take adequate nourishment, are common. Untidiness about the body and the clothing and carelessness in toilet habits may present themselves.

Benign abormal sexual behavior may appear as one of the mental aberrations or as the chief problem of an otherwise quite well adjusted aged person. It is not uncommon to find such persons who are not frankly psychotic exhibiting their external genital organs or fondling the external genital organs of others, particularly of the opposite sex. This form of behavior is more common in males than in females. Old men frequently annoy or molest young girls. They make no attempt or poorly conceived attempts to conceal their acts. The resumption of masturbation and the reappearance of desire for sexual intercourse with or without functional potency may occur in advanced years. The latter may lead to ill-advised marriages. Such activities are preferred to as benign in contradistinction to attempted rape, rape and even more serious "sexual crimes" committed by elderly persons who are seriously disordered mentally.

The basic factors lying behind the production of geriatric psychiatric problems may lead to a picture colored chiefly by alcoholism, or again alcoholism which began earlier in life may continue into old age. Its treatment demands the employment of proper methods for the withdrawal of alcohol, a plan of management such as other maladjustments and behavioral problems require, and in some instances more formal psychotherapy.

In geriatric patients the neuroses or psychoneuroses may appear superimposed upon the background of symptoms referred to as normal in aging persons, or they may be manifested by individuals who are sound mentally. The symptoms are chiefly hypochondriacal in nature, although anxiety states and simple reactive depressions are not infrequently seen. Here again, in addition to other general measures of management, more formal psychotherapy may be required in their treatment.

A plan for the prevention of and management of these minor psychiatric disorders of the aged must include adequate attention to the individual's physical needs and the meeting of his psychological and social needs. The family, the individual himself, industry, the community (government) and medicine and its allied sciences each have responsibilities in such a program.

Any consideration of the physical needs of older persons must center about the prevention inasfar as is possible of the development of and the progression of chronic diseases, the treatment of such diseases, the correction inasfar as is possible of physical defects and attention to adequate nutrition.

The prevalence of chronic disease increases with age although it is well recognized that it is not a feature of old age alone. The most important of the chronic diseases are various forms of heart disease, arteriosclerosis, essential hypertension, nervous and mental disease, kidney disease, tuberculosis, diabetes, and asthma. Increasing attention is being given to the provision of adequate facilities for the care of persons suffering from such diseases in chronic disease hospitals, maintained usually as integral parts of general hospitals, and in convalescent and nursing homes. However, the fact remains[17] that the majority of persons who are chronically ill can be best cared for at home and in the office and clinic. Rehabilitation rather than attention to acute needs must be the keynote of the treatment of these diseases.

Defects in hearing and vision should be corrected inasfar as is possible. Proper dental care is highly important. Other physical defects such as certain surgical conditions and the physical sequellae of cerebral vascular accidents and other neurological disorders demand rehabilitation.

The importance of adequate nutrition at this age and the problems involved, including the administration of supplemental vitamins, has been stressed[8,18] in the literature.

Concurrent with efforts to provide him with the best possible physical health, a program of attention to the psychological and social needs of the individual must be pursued. A major share of this program must be carried out by the family. They must be taught the nature of the patient's psychological needs. These have been delineated by Laycock [11] as:

1. The need for affection. To live in reciprocal warm regard with one or more human beings.
2. The need for belonging. To be a desired and desirable member of a group.
3. The need for independence. Reasonably to order one's own life and make one's own decisions.
4. The need for achievement. To do things, to accomplish tasks, to create things and to find success.
5. The need for recognition. To feel that one's personality and conduct meet the reasonable approval of one's peers.
6. The need for self-esteem. To feel that one's personality and conduct come up reasonably well to one's own inner standards.

It is the duty of the family or the family substitutes to help older persons fulfill these interdependent and somewhat overlapping needs.

The need for affection is marked. Frequently his mate, many of his friends and associates of his own age and even some of his children have died or are no longer near him. Those about him must provide him with a feeling of emotional security. If they do not, the aged person seeks to gain attention, usually without realizing it, by exaggerating his physical illnesses and other handicaps and by complaining that no one ever tells him anything, that no one cares for him, and the like.

The need for belonging obviously shades into the preceding need. The older person must be made to feel that he is a wanted member of a group, ideally of a family group. The younger members of the family should, where possible, include the older person in their activities. Where this is not feasible, he should be informed in advance what the others plan to do and why he cannot participate in the activity.

The loss of independence is very difficult for anyone to accept. . The older person loses much of his feeling of independence when he is forced to give up his life's work. Children err as often in the matter of overprotection as they do in failure to show affection. The older person resents being watched too closely, being told to be sure to dress warmly, to stay out of the rain, to stay out of the sun, to eat more, to eat less, and the like. These admonitions should be kept at the minimum consistent with not seriously damaging his health or life. Again an older person's feeling of dependence is increased by telling him directly or by implication that he is not wanted in the home, that he is being tolerated there, or that he should be happy that his family is making such a sacrifice to give him a "good" home. The aged person should wherever possible maintain his own residence to avoid such emotional strains.

The need for achievement is closely connected with employment and other work or activities such as hobbies in which the older person may engage. Failure to attain some degree of success in such outlets leads to maladjustments or more severe reactions.

Again the need for recognition and approval is tied in with accomplishment and usefulness. Whenever the older person does enter into activity, he should be complimented by those about him. If the only accomplishments he can point to are those of the past, hear him out even though the story has been heard many times before. He should be complimented on past achievements as well as present ones.

It is hard to surrender our place of activity in a fast moving world, to accept the fact we are deteriorating physically, that we are less alert, that we cannot concentrate as we did before, that we forget recent events to our embarrassment, that we are resistant to change—and still retain our self-esteem. The family and those about the aged person must make every effort to help him meet his other psychological needs in order that he may retain his self-esteem.

In dealing with an older person, all the psychotherapists, including psychiatrists and other physicians, ministers, professional counselors, social workers, volunteer social workers, employers and the family, must take an optimistic attitude toward him. They should emphasize the compensations of getting older. These are: (1) accumulated wisdom; (2) ability to balance the new against the old and to give advice; (3) the wealth of experience they have to draw upon, and (4) the value of leisure time.

Let us consider now the attitude which the older person must take toward old age if he is to adjust well in the family setting or its substitute. He must be brought to accept the fact that he must lead a balanced life. In other words, he must accept the fact that as he grows older the proportion of his time spent at work must decrease and the time spent in resting and sleep must be greater, as must be the time spent in recreation, hobbies, and just plain leisure. He must be brought to realize that the world and the ways of life are constantly changing and that the changes are more rapid now than when he was a youngster. Even then, as now, the ways of the grandchild seemed queer or even wrong to grandparents.

He must be led to realize that he must relinquish his control over his children and that the control of the grandchildren in the home is the problem of the parents, not the grandparents. The aged must be brought to look at old age as an opportunity to do new things and things he always wanted to do. He must learn to delegate responsibilities in his work and to prepare to give it up at least to a large degree.

Not all older persons can be brought to accept these attitudes, but many can. Oftentimes other persons than members of the family and the employer may be able to accomplish the engendering of these attitudes more effectively than those immediately concerned with him.

The matter of getting older folk to be active is worthy of some further consideration. Activity *now* should be encouraged rather than contemplation of past experiences and present problems. Participation in women's clubs, clubs for men, hobbies including gardening, travel, collecting, radio, and the like, are possibilities. Interest in sports such as golf, bowling on the green when available, and spectator's sports may be fostered. This "push to activity," as it is often called, must be carried out under careful guidance. There is danger involved if some degree of success is not attained. As Barker[2] has pointed out, "When we excite our older patient to activity, physical, mental or social, the occupation recommended must be one that can be carried on with at least some feeling of success and without fatigue or exhaustion. Failure is only too likely to affect a patient dangerously. When the right occupation is found, the physician must watch the effect carefully, continuing, increasing, or diminishing the activity as seems best for the patient's welfare." The family and others may well aid the physician in this guidance if they are tactful.

Industry must recognize its responsibility to the older person. It must employ more older personnel. In 1890, 74 per cent of the aged were employed. In 1930 only 58 per cent were employed. The recent World War brought about an increase in employment in this age group, but now it has again decreased. In fact at present it is difficult for a man or woman past forty years of age to secure new employment.

The latest war demonstrated the value of older experienced personnel, many of whom were recalled from retirement. The older person should be retained as long as is possible as a teacher or advisor. He should be made to feel that his suggestions are valuable and sought. Retirement does not necessarily eliminate one as an advisor. It is felt that private pension and industrial insurance plans should be broadened and improved.

The community—government—must not shirk its responsibilities to the aged. There is a tendency for local units to slough the responsibility for older persons to the state and federal government. There has been an increasing trend toward committing elderly persons to institutions as senile rather than toward encouraging families and local governmental units to assume the fullest possible responsibility for them. The best possible environment should be provided. While the care of the aged in the family setting has been stressed, it has to be recognized that this environment is not always the best one. At times a home for the aged is better, or again a nursing or rest home, or a county home. Some require care in a general hospital or a chronic disease hospital. Only when other care is not feasible should institutional facilities be employed.

Community centers for the aged providing suitable activities and guidance clinics should be fostered and developed. Their value has been demonstrated where they now exist.

Old age assistance plans are at present inadequate. We must provide the aged with the economic security to the fullest extent now possible.

It is the duty of medicine and its allied sciences to assist the aged person, his family, industry, and the community in every possible way in carrying out a program such as has been suggested. Its interest should not be limited to the individual brought to its attention but should be directed toward the vast problem as a whole.

Although it is true that the majority of the psychiatric problems of the aged may be classed as "minor," the matter of frank psychoses in the aged is rapidly increasing in size and importance. Whereas the minor disorders may usually be managed in homes, general hospitals and chronic disease hospitals, the psychoses as a rule require psychiatric hospital care. In fact, the increase in admission rates for such illnesses far exceeds the increase in population rates of this age group.[5] The accumulation of aged persons has become one of the most difficult and one of the largest problems of such hospitals.

Psychoses due to infection and exhaustion, to exogenous toxins, such as drugs (especially bromide) and alcohol, to endogenous toxins, to syphilis, to Parkinson's disease, and to brain tumor occur in old age, as well as in earlier life. Their recognition depends upon their always being kept in mind by the physician. They are often overlooked or misidentified. Their proper treatment obviously depends upon their recognition. Special care and skill are required in their management. The percentage of psychoses of first admissions falling in this group is quite small.

The two main groups of psychoses occurring in this epoch are those due to disturbances of circulation, i.e., psychosis with cerebral vascular accidents, psychosis with cardiorenal disease, and psychosis with cerebral arteriosclerosis and senile psychosis. Of those due to disturbances of circulation, approximately 94 per cent fall in the group psychosis with cerebral arteriosclerosis.

Psychoses due to disturbances of circulation account for about 10.6 per cent of all psychoses of first admission or about 14,000 such admissions per year in hospitals of all types in this country. Senile psychoses constitute about 7.8 per cent of psychoses of first admission or about 10,000 such admissions per year.

The early symptoms of psychosis with cerebral arteriosclerosis and senile psychosis have been described above under the term "mental aberrations." The hope from treatment lies chiefly in the proper therapy and management of the prodromal states. The clinical picture of psychosis with cerebral arteriosclerosis may be stated briefly as follows. As a rule the onset is gradual. Frequently physical complaints such as peculiar sounds or noises in the head, headache, dizziness, tremors, paresthesias, transitory apoplectiform episodes, epileptiform seizures and aphasia precede or accompany the psychiatric symptoms. The psychiatric symptoms may appear suddenly following injury, illness or an epileptiform or apoplectic seizure.

Emotional instability becomes marked. Uncontrollable outbursts of laughing or crying or of anger are often seen. Persistent depression and paranoid delusions as well as anxiety states may occur. Confusion, disorientation, and memory defects are common. Carelessness about clothing, body and toilet habits becomes marked. Abnormal sexual behavior of a severe nature may appear. The patient is often restless both day and night, and he may be given to outbursts of violence. Aphasia not infrequently complicates the clinical picture.

In senile psychosis, too, the mental aberrations become progressively more pronounced. Confusion, disorientation, memory defects, fixation of ideas upon bodily health and upon past events, confabulations and delusions of a persecutory, grandiose or bizarre nature present themselves. Reversal of sleep rhythm, untidiness, incontinence and abnormal sexual behavior are common.

These two types of psychosis are often indistinguishable from one another clinically and pathologically. Patients with well-developed clinical pictures may present only minimal pathological changes. Again the reverse is often true.

The treatment of the prodromal stages has been stressed. When the frank mental disorder appears, hospitalization usually becomes necessary. Careful attention to physical illnesses and defects, adequate nutrition, attention to elimination, occupational therapy and proper institutional environment are important. These patients should be cared for in one-story buildings especially designed for their use. All activities should be geared to a tempo suited to them. They should not be subjected to the pressures of the more active wards of the hospital. All employes concerned with their care must be aware of the physical and mental limitations of such patients and must be very tolerant and understanding of them.

Studies have been made to determine what happens to patients in these two classifications after admission to mental hospitals. For example, Camargo and Preston[3] reviewed 683 psychoses of first admission, each of whom was over sixty-five years of age upon entering Maryland State Hospitals. They found that 85 per cent were classified as psychosis with cerebral arteriosclerosis or senile psychosis. They noted that 16.7 per cent died within the first month, 47 per cent died within the first year and 66 per cent died within three years after admission. At the end of three years 66 per cent had died, 10 per cent had been discharged and 24 per cent remained in the hospital. The duration of life of these patients was shorter than the average duration expected for the general population of the same age group.

Where the basic etiologic factor is irreversible changes in the brain structure, true recovery is not possible. However, where other physical factors and psychological and social pressures are the chief causative factors, recovery is possible. Palmer[15] pointed out that there is a group of patients diagnostically distinguishable from true psychoses with cerebral arteriosclerosis and senile psychoses only by the results of treatment in whom the prognosis is good. His study was based upon 123 cases legally committed to a mental hospital and diagnosed as psychosis with cerebral arteriosclerosis, or senile psychosis, after three or four weeks of hospitalization, general treatment and observation. He found that nearly 25 per cent achieved social recoveries and returned to their former occupations or to their homes. Palmer stressed the need to eliminate any infectious, toxic and exhaustive factors.

In addition to the types of frank mental disorders of old age considered, there remains a group composed of manic depressive reactions, late involutional melancholias, paranoid states especially with depressive features distinct from cerebral arteriosclerotic and senile psychoses with paranoid trends, and severe reactive depressions, in which the use of electroshock therapy is often of great value.

Gallinek,[9] Feldman et al[7] and others have described the methods of treatment, the contraindication and the results obtained. One may cite as an example of the results obtained Gallinek's[9] report of seventeen cases. Of these seven showed complete recovery, two marked improvement, one no improvement, and five recovery or improvement with subsequent relapse. The value of maintenance electroshock therapy in those who relapse was stressed.

Many articles have appeared in the literature concerning cardiovascular pathology in its relationship to electroshock therapy. Our own experience leads us to agree with the conclusions of Kalinowsky and Hoch,[10] and Rowe and Schiele.[21] There is some degree of risk in using this form of treatment in persons with normal hearts, and this risk is increased in patients with abnormal hearts. The status of the heart may be determined by an internist. However, the psychiatrist must weigh the cardiac risk against the psychiatric problem and determine on the basis of his knowledge of the psychosis and his experience with convulsive therapy whether or not electroshock treatment should be used. Experience has shown that patients with moderately severe cardiac disease can tolerate this form of therapy.

In the group of psychotics under consideration, the problem of differentiating between a true irreversible psychosis and one which has a reasonable outlook for recovery or marked improvement is more difficult than that of assaying the physical risks involved in electroshock therapy.

In advising the family or friends of an elderly patient who presents a psychiatric problem, the physician should keep the following points in mind: Guardianship should be instituted in some instances for purposes of controling the activities and the finances of the individual. This step should be taken for the patient's benefit, however, rather than for the benefit of his relatives. One should not be too quick to advise commitment to an institution. Consideration should be given to the possibility of providing adequate care at home, in a rest home, a county home, in a home for the aged, in a general hospital, or in a special hospital for the chronically ill.

It should be remembered that not every person who presents a psychosis for the first time in old age is suffering from a true cerebral arteriosclerotic or senile psychosis. The shortness of life after commitment should never be forgotten. The following things demand care in a psychiatric hospital: sexual acts which are not tolerable; marked untidiness, particularly of the body and in regard to urine and feces; paranoid delusions, especially where they center about individuals rather than groups and most particularly when these individuals are accessible to the patient; depression because of the danger of suicide; and intellectual deterioration when it has progressed to the point when the ability for self preservation is lost, or when it endangers the lives of others.

Summary

Certain aspects of the role of psychiatry in geriatrics have been reviewed. These included the scope of the problem of the aged, the factors involved in the production of certain of the less severe and of the more grave psychiatric problems of this age group, and the nature and management of these particular disorders.

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Discussion

Dr. William H. Hengstler, St. Paul: Dr. Gardner has covered this field so well in his paper that I have not much to add except to express my personal appreciation of his presentation. It is extremely important for the psychiatrist to give intelligent advice to families as to what they should do with elderly fathers or mothers. The individual case cannot be decided by a textbook or by a fixed rule.

STUDIES ON BRUCELLOSIS IN MINNESOTA

(Continued from Page 338)

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PARATHION POISONING

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PARATHION is one of the new organic phosphates which are finding so much favor as insecticides. It was developed by the Germans during the last war. Details of this chemical were taken to England and first reported in the British Intelligence Objectives Report in 1946.

Parathion is a synthetic chemical, diethyl-nitrophenyl thiophosphate ($C_{10}H_{14}O_5PSN$). Chemists in the United States were soon able to produce it in commercial quantities, and it has become recognized as a valuable weapon in the fight against insects. The name parathion was selected by the Inter-Departmental Committee on Pest Control. It has been marketed under such trade names as: alkron, aphamite, durathion, genithion, niran, par, paradust, parakill, paraphos, penphos, phos kil, planthion, thiondust, thiophos and vapophos and is now becoming quite widely used.

Parathion is a heavy, syrupy liquid which is usually dark brown in color. It is only slightly soluble in water, but is readily miscible with many organic solvents such as ethers, alcohols, acetone, carbon tetrachloride and animal and vegetable oils. It is quite stable in neutral or acid solution, but is rapidly hydrolized by alkalis and soaps.

Parathion is usually formulated as a wettable powder of 15 to 25 per cent strength which may be mixed with water for application as a spray. It is also sometimes formulated for application as a dust in 1 or 2 per cent strength.

Parathion has outstanding insecticidal properties. For cockroaches it is nearly twenty times as effective as DDT, and more than 200 times as effective as nicotine. When properly applied, it has no injurious effects to plants, but because of its low solubility in water, it remains for some time as an effective insecticide residue.

Unfortunately, parathion is also very toxic to warm-blooded animals and man. Animal experiments have indicated that ingested dosages of 2 to 10 mg./kg. of body weight are lethal. The toxicity for man has not been established, but it probably is of the same order. Parathion is readily absorbed through the skin, and near fatalities and deaths have been caused merely by splashing it on the skin and neglecting to wash it off promptly. It may also find entry by inhalation or by way of the gastrointestinal tract.

Because of its high toxicity, parathion is not suitable for home and garden use. It should only be used by large scale commercial growers or professional sprayers who are prepared to take all the precautions necessary. Warnings and details of protective measures are marked on the cans and packages by the manufacturers, who are well aware of its dangers.

The pharmacological action of parathion appears to be dual. One effect is stimulation of the parasympathetic nervous system. The other is an anti-cholinesterase activity. There appears to be an irreversible destruction of the enzyme cholinesterase. As a result of this action, acetylcholine accumulates and continues to stimulate the parasympathetic nervous system, producing effects resembling those of both muscarine and nicotine.

Signs and Symptoms

Common symptoms are excessive salivation, lacrimation and sweating, headache, dizziness, nausea, vomiting, abdominal cramps, diarrhea or constipation, tightness in the chest, shortness of breath, blurring of vision associated with a constricted pupil and difficulty in accommodating for distant vision. There may be bronchial spasm and pulmonary edema resulting from capillary dilatation and excessive glandular secretions into the bronchi and bronchioles. There may be spasms of the voluntary muscles or even convulsions. Excitement of the central nervous system may be followed by depression, loss of reflexes, coma and death by failure of the respiratory center. In some cases, death may be due to bronchial constriction and cardiovascular collapse associated with pulmonary edema.

Diagnosis

A correct diagnosis depends largely on knowing that the patient has had an exposure to parathion. If some of the above symptoms and signs are found, poisoning with an organic phosphate should be suspected. Ten c.c. of blood in citrate may be tested for cholinesterase. If cholinesterase is found to be considerably reduced, it is useful confirmatory evidence.

Treatment

Prevent further absorption by immediate washing of the contaminated area with soap and water if the mode of entry is through the skin. Empty the stomach by inducing vomiting, or wash it out with a stomach tube if the poison has been ingested. If there is dyspnea or evidence of pulmonary edema, the patient should be placed in an oxygen tent at once.

The most useful specific remedy is atropine, which blocks the parasympathetic effect on the heart and lungs. It should be given as early as possible after a diagnosis is made, and in doses of 1/75 to 1/50 of a grain. The atropine should be repeated every hour or so up to ten or twelve doses in a day if necessary to control respiratory symptoms and keep the patient fully atropinized. Dilatation of the pupils should be achieved. The atropine may be given intramuscularly or intravenously.

Atropine can completely protect the air way, but it should be remembered that if pulmonary secretions have accumulated before atropine becomes effective, it may be necessary to turn the patient upside down for drainage, or suck the secretions out with a catheter. The patient may be too weak to cough. Muscular weakness may be so great that he cannot even breathe. In such circumstances, artificial respiration must be carried on. Atropine does not control the muscular weakness nor twitching of the muscles.

Morphine, of course, must not be given. Some protection of the myoneural junction against the nicotinic effects of parathion is afforded by magnesium sulphate, which effect is believed to be due to the magnesium ion. The usual dose of magnesium sulphate is 10 to 20 c.c. of a 10 per cent solution given slowly intravenously.

The acute emergency lasts twenty-four to forty-eight hours. During this time, the patient must be watched continuously. After danger appears to be past, the patient must have several more days of absolute rest. Further contact with organic phosphates must be avoided for at least two weeks, as the patient remains very susceptible to further poisoning during this time. The explanation offered is that symptoms disappear when the body's supply of cholinesterase is only partly replaced. During this period of partial replacement, it takes very little parathion to destroy the small amount of cholinesterase which has accumulated and precipitate another acute attack.

So far as is known at present, recovery from parathion poisoning is complete with no residual complications. Chronic poisoning has not been encountered. Small repeated doses of parathion, however, may bring about depletion of cholinesterase, so that when symptoms do develop they may seem to be precipitated by an exceedingly small recent exposure.

Workers with parathion may request a supply of atropine for use in an emergency. There is danger in granting such a request. Atropine, if taken before exposure, will mask the symptoms. Workers, if given atropine, should be warned not to take it until after symptoms develop. They should be warned that if symptoms develop, they must stop work and seek help immediately and not depend upon atropine to protect them.

Manufacturers of technical grade parathion are well aware of its dangers, and have the facilities and trained personnel to handle it safely. The formulation of 15 to 25 per cent wettable powders for making spraying mixtures and the formulation of 1 or 2 per cent parathion dusting powders may be undertaken by small manufacturers who are not experienced in the handling of such toxic chemicals. Exposure of workers in these plants on the one hand and exposure of farmers, fruit growers, sprayers and airplane pilots on the other, are the concern of the industrial hygiene divisions of the various state and federal public health agencies.

Prevention of over-exposure is possible in carrying out the normal operations of formulating wettable and dusting powders, and applying the insecticide, if proper precautions are taken.

In the plant, careful planning of the operation so that the processes are as far as possible automatic and isolated is essential. General and local good ventilation must be provided. Adequate washing and showering facilities are required. It is also the plant's responsibility to provide freshly laundered protective clothing every day. The plant must carry out a proper training and educational campaign.

In general, the following protective measures should be carried out by all users of parathion and other organic phosphates.

1. Wear only protective clothing at work and such underwear and socks as will be changed and laundered daily. Protective clothing includes coveralls, rubber gloves, shoes, caps, goggles and a respirator.
2. If liquid preparations are used, additional waterproof material must be worn, such as rubber apron or waterproof cape and hat and rubber boots.
3. Protective clothing must be changed and laundered daily. Waterproof materials must be thoroughly washed in soap and water at the end of each day.
4. Careful washing of the hands and face with soap and water before eating or smoking.
5. Never eat, smoke nor chew in an atmosphere containing parathion, and keep all food and lunches where they cannot be contaminated.
6. Thorough cleansing of the whole body at the end of each shift by shower bath and liberal use of soap.

The respirator which is to date most satisfactory for general use is parathion respirator, Mine Safety Appliances Company, No. Cr. 49290. Replacement cartridges are No. Cr. 49293 and replacement filters are No. Cr. 49294.*

Airplane pilots applying spray and others applying parathion aerosols, and workmen preparing high concentrations or mixing the chemical with carriers other than water, should use full-face gas masks.

If an accident occurs, such as breakage of equipment, releasing a spray of solution onto the clothing, or accidental inhalation of dust or vapors containing parathion, the following steps should be taken:

1. Immediate removal of wet clothing and thorough washing of the affected part with soap and water.
2. Notify the plant doctor or patient's private physician of the exposure.
3. Send the worker home for compulsory bed rest for twenty-four hours or so.
4. Detail a relative or someone to watch him, who will notify the doctor if symptoms of poisoning occur.

If an accidental spillage of parathion liquid occurs in a plant, it should be cleaned up immediately by absorbing it in sawdust, and then bury or burn the sawdust. The floor where the spillage occurs should then be thoroughly cleaned using an alkaline solution.

If a powder containing parathion is spilled, it should be cleaned up with a vacuum cleaner and the contents of the cleaner burned.

Containers in which parathion has been shipped must never be used again. Metal containers should be punched full of holes and placed in a private disposal ground. Combustible packages should be burned as soon as emptied.

Further advice on protective measures is available from the Division of Industrial Health, Section of Environmental Sanitation, Minnesota Department of Health, University Campus, Minneapolis, Minnesota.

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*Other suggested respirators are:

Mine Safety Appliances Co.—Chemical Cartridge Respirator No. Cr. 45779.

Wilson Products Co., Reading, Pa.—Chemical Cartridge Respirator, No. 701.

American Optical Co., Southbridge, Mass.—Chemical Cartridge Respirator No. R-5055.

INTRAVENOUS ADMINISTRATION OF PARA-AMINOSALICYLIC ACID FOR STREPTOMYCIN-RESISTANT TUBERCULOSIS OF THE TRACHEA

Report of a Case

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PARA-AMINOSALICYLIC acid (PAS) is a new antituberculosis drug which is effective against both streptomycin-sensitive and streptomycin-resistant tubercle bacilli. The following report of a case illustrates the efficacy of the new drug against tuberculosis due to streptomycin-resistant tubercle bacilli. It is of particular interest as most of the PAS was given intravenously to avoid the gastrointestinal irritation which usually develops when this drug is given orally.

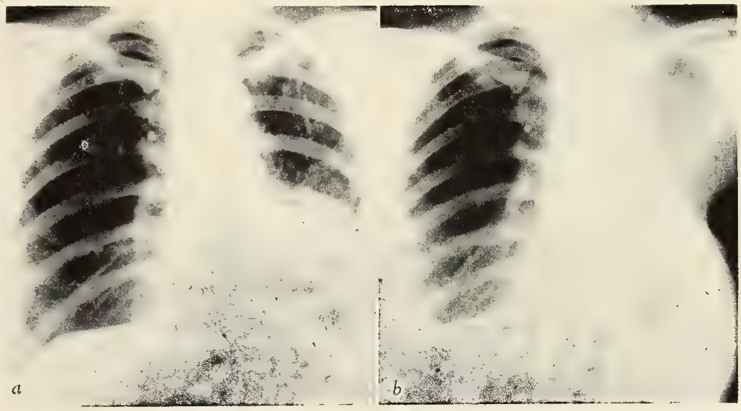

Fig. 1(a) January 25, 1949. Extensive disease is shown in the left lung before pneumonectomy. (b) August 23, 1949. The results of pneumonectomy and thoracoplasty are evident. Change had not occurred on the right side.

Report of Case

A white woman, thirty-two years of age, registered at the Mayo Clinic on January 24, 1949. A diagnosis of tuberculosis of the left lung had been made in January, 1948. She had entered a hospital where she rested in bed and also underwent therapeutic pneumothorax on the left side. In spite of this, tuberculosis of the left main bronchus and of the larynx had developed for which she was given streptomycin, one course of 1 gm. daily for fifty-five days and another of 1.5 gm. daily for one hundred and twenty-three days. The laryngeal lesion healed but the bronchial lesion persisted, producing stenosis of the left main bronchus. In addition, tubercles developed in the left side of the lower end of the trachea. Stained smears of the sputum remained positive for acid-fast bacilli throughout the period of treatment. Diagnostic study at the clinic revealed extensive disease of the left lung (Fig. 1*a*), stained smears of sputum being positive for acid-fast bacilli. Bronchoscopic examination revealed ulceration on the left side of the lower 3 inches (7.6 cm.) of the trachea. The lumen of the left main bronchus was stenosed to a pinpoint opening so that the depth of this bronchus could not be examined. The right main bronchus appeared normal.

In spite of tracheal disease and the probability that the tubercle bacilli were highly resistant to streptomycin, pneumonectomy on the left was advised. This was performed on February 1, 1949, and at the same time partial thoracoplasty was done, parts of the fifth, sixth and seventh ribs being removed. The immediate postoperative course was satisfactory and on February 17, 1949, a second stage thoracoplasty was performed, parts of the second, third and fourth ribs being removed. During this time she was given 1 gm. of dihydrostreptomycin each day even though it seemed probable that tubercle bacilli were resistant to this drug.

On February 22, 1949, bronchoscopic examination revealed persistence of the extensive ulceration in the lower end of the trachea, and stained smears of sputum were still positive for acid-fast bacilli. By this time it had been determined that the tubercle bacilli were resistant to steptomycin, the micro-organism growing in culture medium containing 100 micrograms of streptomycin per milliliter of medium.

Treatment with large doses of PAS was advised and to avoid the gastrointestinal irritation which this drug causes, the sodium salt of PAS (NaPAS)* was administered intravenously. On February 26, 1949, 4 gm. of NaPAS was given and the daily dose gradually increased until 30 gm. was being given each day. The total daily dose was added to 1,000 c.c. of 5 per cent glucose in distilled water and injected over a period of about eight hours. During the third month of treatment only 10 gm. of NaPAS was given intravenously each day due to an inadequate supply of the drug. This was supplemented by 14.4 gm. of PAS† administered orally each day in three equal doses. The total

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Dr. Carr and Dr. Schmidt are with the Division of Medicine, Dr. Seybold with the Division of Surgery and Dr. Karlson with the Division of Experimental Medicine of the Mayo Clinic and Mayo Foundation, Rochester, Minnesota.

*The NaPAS was supplied by Cilag, Limited, Schaffhouse, Switzerland.

†The PAS was supplied by Dr. E. A. Sharp, Parke, Davis & Company, Detroit, Michigan.

TABLE I. CONCENTRATION OF PAS IN BLOOD SERUM AT INTERVALS DURING A PERIOD OF TWENTY-FOUR HOURS*

Hours after beginning injection	Concentration of PAS in blood serum (milligrams per 100 c.c.)	
	Free PAS	Total PAS
4¼	32.0	28.6
11	4.9	6.4
24	<1.0	<1.0

*In the first seven and a third hours the patient was given 30 gm. of NaPAS intravenously.

TABLE II. EXCRETION OF PAS IN THE URINE DURING A PERIOD OF TWENTY-FOUR HOURS*

Period of eight hours	Volume of urine, c.c.	PAS, gm. Free	Total
First	1,100	17.0	16.6
Second	1,100	7.0	8.0
Third	200	1.5	3.4
Totals		25.5	28.0

*In the first seven and a third hours the patient was given 30 gm. of NaPAS intravenously.

dose of PAS during the three months of treatment was 1,646 gm. of NaPAS given intravenously and 452.7 gm. of PAS by the oral route.

There was a dramatic response to this treatment. On March 23, 1949, a bronchoscopic examination revealed marked healing of the lesion in the trachea with only a small ulcerated area remaining just above the orifice of the stump of the left main bronchus. The ulceration extended down into this stump and was covered with a grayish-white exudate. Stained smears of sputum which had been positive persistently for acid-fast bacilli during the first month after pneumonectomy were now negative. However, cultures of sputum at this time proved to be positive for acid-fast bacilli.

After two months of treatment with PAS a bronchoscopic examination revealed complete healing of the tracheal ulceration. The orifice of the left main bronchus was slightly inflamed and bled a little when touched with forceps. A cultured specimen of the bronchial secretions obtained at this time did not show acid-fast bacilli to be present. After the third month of treatment had been completed, bronchoscopic examination did not reveal evidence of tuberculosis. The orifice of the left main bronchus appeared as a small dimple in the lateral wall of the lower portion of the trachea. The mucosa appeared normal but bled on bronchoscopic manipulation. Six specimens of sputum, gastric washings and bronchial secretion were cultured. Negative results were obtained from 5 cultures but 1 culture of sputum yielded a few colonies of acid-fast bacilli. During the three months of treatment the roentgenographic appearance of the right lung remained unchanged. At this stage of the treatment the patient left the hospital to continue rest in bed at home.

She returned to the clinic on August 22, 1949, for reexamination, having had no symptoms during the interval. A roentgenogram of the chest (Fig. 1*b*) did not show any change when compared with the film made in May, 1949. A bronchoscopic examination revealed no evidence of active disease. The stump of the left main bronchus still appeared as a small dimple on the left in the lower portion of the tracheal wall. The mucosa appeared normal and did not bleed on manipulation. No secretions were present. Bronchial washings were obtained for culture for acid-fast bacilli. Two specimens of gastric washings also were cultured. One of the gastric specimens yielded a few colonies of acid-fast bacilli but the results of the other 2 cultures were negative.

Evidence of toxicity to PAS was searched for carefully during and after the period of treatment but none was found. There was no sign or symptom of gastrointestinal irritation even when 30 gm. of NaPAS was given intravenously each day. The results of weekly blood counts, determinations of hemoglobin and urinalyses remained within normal ranges. Biweekly to monthly tests of renal and hepatic function showed no evidence of damage to the kidneys or liver. The prothrombin time varied from 19 to 23 seconds. There was some irritation of the veins with thromboses but it was possible to give the intravenous injection every day for 90 consecutive days.

The concentration of PAS in the blood serum and the excretion of PAS in the urine were studied* during a period of twenty-four hours in which the patient was given 30 gm. of NaPAS intravenously during the first seven and a third hours. The results are given in Tables I and II.

A streptomycin-sensitivity test was performed on each of the positive cultures for acid-fast bacilli. The microorganisms remained resistant to streptomycin throughout the period of observation. Sensitivity to PAS was also determined for all of the positive cultures. There was no evidence of increase in resistance to PAS, all of the cultures being sensitive to between 0.0045 and 0.072 mg. of PAS per 100 milliliters of culture medium.

Reexamination of the patient in December, 1949, revealed no evidence of active tuberculosis. Culture of three specimens of gastric washings and one specimen of bronchial secretions aspirated during bronchoscopy did not produce acid-fast bacilli.

Comment

It is worthy of note that a similar preparation of NaPAS was administered to two other patients by the intravenous route and in both cases acute hemolytic anemia developed after a few days of treatment. The preparation had been stored at room temperature for several months and analysis revealed that 24 per cent of the NaPAS had decomposed to meta-aminophenol and related compounds. For this reason it would seem wise to use only a freshly prepared solution of NaPAS for parenteral administration.

Summary

The sodium salt of para-aminosalicylic acid (NaPAS) was given intravenously in the treatment for a tuberculous ulcer of the trachea due to streptomycin-resistant tubercle bacilli which persisted after pneumonectomy. The ulcer was completely healed by the end of the three months of treatment, but gastric washings remained positive for acid-fast bacilli. The microorganisms were resistant to streptomycin and sensitive to PAS both before and after treatment. There was no untoward reaction to the medication except for venous irritation. However, a similar preparation of NaPAS given intravenously produced an acute hemolytic anemia in two other cases, probably due to partial degradation of the PAS to meta-aminophenol.

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*With the collaboration of Dr. A. C. Bratton, Jr., Research Department, Parke, Davis & Company, Detroit, Michigan.

PSYCHIATRY IN GENERAL PRACTICE

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Case Presentation

THE patient was a forty-four-year-old white woman who was first seen at the office on August 16, 1949. Her chief complaints at that time were occasional dizziness, feeling of faintness, weakness and drawing sensation in both groins.

History revealed that she first noted dizziness about three months previously. She stated that she first noted her symptoms when she was sitting in church one Sunday and had gotten up quite suddenly. About three weeks before her symptoms had become more severe: the dizziness was much more marked, and the weakness, especially of the lower extremities, had developed. The patient stated that the difficulty in walking had become so severe that she would occasionally catch herself on a chair, table or the wall to prevent falling.

The patient was examined again at the office and it was felt that hospitalization was necessary, so admission to Naeve Hospital was arranged. While the patient was leaving the office she collapsed in front of the elevator and was found lying on the floor. She was apparently fully conscious, as shown by her response to questioning, but was unable to get up. After a brief examination which revealed no injury, she was taken to the local hospital and admitted September 26.

Past History.—The past history was essentially negative. She had had the ordinary childhood diseases but no serious illness or accident. She had had an appendectomy about ten years previously. The only significant finding in the past history was that the patient stated she had had a "nervous breakdown" while a student nurse about twenty years before.

Personal History.—The patient had completed high school (with difficulty according to the informant) and had started a nurse's hospital training. She stated she dropped out of high school in the second year because of a "nervous breakdown." The informant stated that she was obliged to quit because she had difficulty in her class work. Since that time she had been keeping house for her father who was a widower.

About eight months ago the patient's father remarried, and the patient stayed around home for a couple of weeks helping with the house work, but, for various reasons, she decided "to go out on my own." For the past six months she had been working at house work at several homes around her home town.

The patient mentioned on one occasion that she had a boy friend (aged sixty) whom she had been going with for several years. She stated that on several occasions he had made advances and she had refused because she thought doing such a thing was a sin when they were not married.

Family History.—Her father is living and well. Her mother died twenty-five years ago, the cause unknown. Two brothers and three sisters are living and well. There is no family history of serious organic disorders, of familial diseases, or of nervous or mental disease.

Physical Examination.—Physical examination revealed a well-developed, slightly obese white woman in no acute distress. She walked into the office with a slight staggering gait and fell into the chair with a thud. Her speech was somewhat thick. Her temperature was 98.6°, pulse 82, blood pressure 170/100. Examination of the eyes revealed that the pupils reacted slowly to light but were equal in size. Reaction to accommodation was normal. Extra-ocular movements were normal except that slight lateral nystagmus of both eyes was noted. Examination of ears, nose and throat was negative. There was no cervical adenopathy and the thyroid was not palpable. Breasts revealed no masses, chest was clear, heart rate was regular and there were no murmurs nor enlargement. The abdomen was soft with no masses palpable. There was a right lower quadrant scar. Liver, kidney and spleen were not palpable. No inguinal adenopathy was noted. Examination of the pelvis and rectum was negative. Extremities were normal with no deformities noted.

Neurological Examination.—Neurological examination revealed:

1. Pupils equal but reacted slowly to light. Examination of remainder of cranial nerves was negative.
2. Lateral nystagmus of both eyes was noted.
3. Reflexes: (a) Absent abdominal reflexes. (b) All reflexes were equal but slightly hyperactive. (c) Babinski's sign was negative. Chaddocks, Rossolimo's toe signs were negative. (d) Patient exhibited a positive Rhomberg. On asking the patient to stand she would fall backward with jerking movements into a chair.
4. The motor system was normal. There was no paralysis or paresis noted.
5. Sensibility—no paresthesias. Position sense, vibration sense and deep muscle pain were normal.
6. Tests for co-ordination revealed no abnormality. F to F and F to N tests were normal.

Mental Status.—1. Mental Content—Patient appeared rational and was pleasant to interview. One observation noted was the apparent lack of concern about her disability. She answered questions readily and accurately but when not spoken to would move her lips as if speaking to herself. A certain amount of mental

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Presented at the staff meeting of the Naeve Hospital, Albert Lea, Minnesota, November 14, 1949.

History was obtained from patient and informants. Informants were patient's father and stepmother. Part of physical findings, diagnosis and therapy reported was taken from letter from Mayo Clinic.

preoccupation was noted. No delusions, hallucinations or paranoid trends were illicited.

2. Sensorium and intellect—Patient was well oriented as to time, place and person. Memory was unusually good. Informant stated that patient had an excellent memory and that if any of the members of the family wanted to know about any dates or past events, the patient could give accurate details. Patient's general knowledge was fair, and thinking capacity as evidenced by simple calculations was slow but accurate.

3. Emotional tone—Patient exhibited no evidence of depression or agitation. She did present a somewhat indifferent and apathetic attitude toward her illness.

4. Stream of thought—normal.

5. Attitude and manner—well dressed, natural and open—discussed problems freely.

Laboratory.—Usual laboratory work such as urinalysis, blood counts, et cetera, were normal.

A spinal tap was done the day after admission and was negative.

Hospital Progress.—During the ten days of the patient's hospitalization, her status remained unchanged; symptoms did not improve in spite of ordinary psychotherapeutic methods such as encouragement, reassurance and mild sedation.

A differential diagnosis of multiple sclerosis of psychoneurosis, conversion hysteria, tension state, was made.

After ten days hospitalization it was decided to transfer the patient to the Mayo Clinic at Rochester for further investigation and therapy. She was admitted to the neuropsychiatric service of St. Mary's Hospital October 11.

Following is an excerpt of a communication from the staff doctor at Mayo Clinic in charge of the patient:

> "Her general physical examination was essentially negative. A neurological examination revealed only a slight degree of horizontal and vertical nystagmus. This was considered to be of little significance with reference to her present problem since it was noted on a previous neurological examination in 1930. Her gait, though extremely bizarre, did not correspond to the disturbances seen with any ordinary neurological lesions. The nature of her gait plus her bland and somewhat indefinite attitude toward her symptoms strongly suggested the possibility of a severe neurotic reaction. She was seen in consultation in the psychiatric section and transferred to that section at St. Mary's for treatment. Her progress there has been somewhat slow. After repeated sessions under hypnosis her gait improved somewhat. It was noted, however, that her personality is so loosely organized and that her thought processes are often so illogical that she is unable to profit to any great degree from this type of therapy. Further observation has indicated that the patient is suffering from a severe conversion hysteria or possibly a schizophrenic reaction. A possibility of utilizing more heroic therapy such as electroshock treatments has been considered but the final decision has not yet been reached."

Patient was discharged from the neuropsychiatric service at the Mayo Clinic after about a month of intensive therapy with a diagnosis of "conversion hysteria, severe."

Therapy consisted of psychotherapy, occupational therapy, physiotherapy, and hypnosis. She made a satisfactory recovery, with complete return of function of her lower extremities, and is now on her own doing well.

Discussion

It is estimated that about 50 per cent of all patients coming to a doctor's office are suffering from some sort of emotional and tension disorder. In most of these patients we are not dealing with major mental disturbances but with some conflict or problem which is manifesting itself in a psychosomatic complaint. Most of us practitioners are so busy diligently searching for some organic or structural disorder that we fail to observe or understand some simple problem in personality which may be causing symptoms. We usually concentrate our attention on disease, paying little attention to the patient as a person. We oftentimes have little regard for the factors which make the patient an individual distinguished from his fellows. Oftentimes we see nothing more in a patient than the sum total of a disease which has certain detailed symptoms, etiology, prognosis, pathological anatomy and medical or surgical treatment. More often *the disease* has been overemphasized and the patient overlooked. It is true that tremendous strides have been made in diagnostic methods, in laboratory methods and in medical and surgical treatment, but these advances only seem to accentuate the tendency to forget the individual. The emotional life of the patient, his family life, his economic and social situations may be very essential factors in understanding the symptoms which he presents.

It is the purpose of this paper to present some of the factors which make up a total personality, to show how the personality reacts to stress normally and abnormally, producing neuroses, to discuss the etiology, diagnosis and therapy of the most common psychiatric disorder encountered in general practice and to try to present some helps in psychotherapy.

The general practitioner has several advantages over the psychiatrist in dealing with the common psychogenic illnesses. First of all, he generally sees them in earlier stages when they are more amenable to therapy; and secondly, he can approach the patient as a general practitioner rather than as a specialist. The general practitioner may sometimes have more rapport with the patient since confidence in him has already been established—in other words, he is the "family doctor."

Only a small percentage of neurotic patients will be or need be seen by a psychiatrist, and for that reason it is becoming increasingly apparent that a greater integration of basic psychiatric concepts be accomplished by the general doctor to take care of the "other 50 per cent" of his medical practice.

The study of man's mental processes has lagged far behind the study of his anatomical, physiologic and chemical processes. This is most likely due to the fact that the mental factors are less tangible and less amenable to measurement and manipulation. It is also possibly due to certain deep-rooted superstitions and dogmas which have held sway the past centuries.

Psychosomatic medicine has made rapid advance the past ten to fifteen years and is placing new emphasis on the psychic and emotional life of an individual. It recognizes that what patients do and feel are facts no less than are the physical conditions observed. Emotional reactions of love, fear, anger and hate are just as real as are the organs of the body and are capable of producing prolonged, disabling and almost intolerable illness.

A pathologic anxiety can cause far more suffering than rheumatic cardiac lesions or uterine fibroids which a patient may have.

Phychiatric illness afflicts the largest single group of patients. While they occupy more hospital beds than all other groups, most of them are not in mental hospitals but are frequenting physicians' offices presenting multiple psychosomatic complaints. The time demanded by these patients often can be reduced in the long run by effective and disciplined management. The common disorders, tension states, reactive depressions, involutional melancholias and other emotional disorders should be recognized as such, and therapy for actual mental illness should be instituted instead of treating for some non-existent organic disorder with diagnostic placebos.

The future of psychiatry lies not so much in the salvage of the one million patients that crowd mental hospitals but in the application of psychiatry to all patients.

From the physician's personal point of view, at least a cultural knowledge of psychiatry has something to offer in a more rational appreciation of his fellowmen, in human relations, in a better understanding and perspective of himself and possibly in the matter of some aid in his own personality development. Finally, there is something to be said for its downright interest, for a patient's mind can be as interesting as his colon.

At this point I will try to mention briefly some of the mechanisms involved in producing a neuroses.

Psychiatry believes that the neurotic patient is not just an unfortunate individual who is a victim of bad fortune but that he is a person who retreats into his illness through stages which can be studied and whose course can be predicted. Basically the personality of the individual is disturbed in some way. It is difficult to define personality but according to leading psychiatrists it is made up of five major factors. The first part has to do with the physical structure of the individual, the second deals with his biochemistry, the third with the great field of emotions, the fourth with his behavior, and the fifth part has to do with his mind. These five factors make up the "total personality." Emotions include fear, anxiety, jealousy, hate, anger, sex, love, courage, faith, et cetera. A person's behavior is adjusted either by public opinion or the laws of the state and country. It is true that what constitutes adjusted normal behavior today may be a maladjusted state of affairs tomorrow. The elements which make up the mind are constant: attention, comprehension, intelligence, judgment, memory, insight, stream of thought, sensorium, et cetera—the chief element being intelligence. Any disturbance of any one of the five factors making up the total personality will tend to upset the balance between the others and cause maladjustment.

A neurosis arises in a person as a result of his reaction to the stress to which he is subjected. The stress is either *internal,* i.e., conflicts arising from feelings of guilt, hostility or frustration; or *external,* i.e., trauma of war, shock, grief, economic threat or environmental difficulty. Factors of emotional maladjustment are generally more potent in reacting adversely to stress and any personality will break down if this stress is sufficiently great. Against stress is aligned the patients' mental stability which can be compared to the physical resistance to infections and which make up his emotional maturity. His hereditary assets, his physical health and the sum of all his earlier cultural and intellectual training are also important factors in the emotional stability with which he resists stress. When these factors are exceeded, the equilibrium fails and compensatory mechanisms that are basically neurotic are mobilized. Symptoms then appear and indicate that the defense mechanism or mental stability has failed or has exceeded what is generally regarded as normal bounds. The personality is then said to be sick. Help from relatives, friends, physicians or perhaps quacks and cultists may be sought in the patient's effort to restore a satisfactory balance. Another alternative is that he may continue to live his disordered life. Peptic ulcers or ulcerative colitis may develop, he may become an alcoholic or complain of multiple physical symptoms, seek unnecessary surgical procedures, change jobs, wives or physicians or even resort to suicide. Basically then, the patient either develops mental mechanisms such as evasion, regression, sublimation, projection, rationalization, conversion or repression to escape the stress situation and/or subconsciously develops some physical manifestation as his symptoms.

Perhaps the most common psychiatric disorder encountered in general practice is the anxiety syndrome.

The anxiety syndrome was first described by Hecker in 1893, but it was not until after World War I that it received general recognition in this country. It has been known by many other terms such as nervousness, neurocirculatory asthenia, spastic colon, nervous breakdown, nervous exhaustion, shattered nerves, shell shock, et cetera. The picture varies in the number, character and severity of the symptoms. Every person is basically anxious and the severity depends upon the underlying personality foundation of the individual. The anxiety syndrome usually occurs in an individual who is inclined to be tense, uneasy, with transient attacks of palpitation, precordial discomfort, perspiration, dyspnea, weakness and faintness. The patient may complain of difficulty in sleeping, of being easily fatigued, of constant headache and often of pressure on the top of the head or a band around the head. He may lose weight, be irritable and worry without knowing why. Examination will usually reveal a tense, restless, uneasy individual with cold, clammy hands and feet. The pulse rate may be increased, the abdomen tender to palpation and the deep reflexes overactive. The differential diagnosis begins with a very careful physical, neurological and serological examination. One should be absolutely sure that the individual does not have either some structural disease of his body or the central nervous system. The physician must be prepared to spend sufficient time in this to prove to himself and the patient that there is no organic disease. The anxiety state must be thought of as an exaggerated expression of the lack of function of the whole personality and treatment should be directed against those factors which are the cause. Attention should be paid to the environmental factors such as family difficulties, incompatabilities and worries. One should have a thorough understanding of the person's problems, his assets and liabilities. Engaging in a frank discussion of these problems and giving the patient an opportunity to express himself is a good form of therapy and is known as aeration, ventilation or mental catharsis. The initial interview should be adequate and lengthy enough so that the patient feels that the doctor is concerned and interested in his trouble. The patient should be told about the relationship of the symptoms to some underlying emotional difficulty, and it is important for the patient to be told that the symptoms are *not* imaginery but are the direct result of some emotional conflict. The wise use of sedatives plays a part in the therapy of the anxiety syndrome.

Lastly, I will try to summarize a few of the more common psychotherapeutic procedures and discuss briefly some of the methods used.

The approach to the patient must be passive, non-critical and in an interested manner. Don't immediately plunge into the depths of the patient's problem, because the instinctive reaction to this is one of defense and evasion. Don't begin by offering excessive or unwarranted reassurances. Don't be dominating or autocratic. Don't forcibly unwrap a patient without having some idea of his mental anatomy and and without knowing how to wrap him up again. As one psychiatrist put it, "Don't do a mental laparotomy and leave the incision gaping open." The neurotic personality has defenses that have been built up carefully which serve as a protection against the ravages of anxiety, guilt and fear. Patients are readily made worse if these defenses are abruptly knocked out before adequate supports have been set up to replace them.

The interview should be guided to economize on time and it is usually more satisfactory than pushing the interview.

Questions such as "Would you like to tell me about your difficulty?" invite the patient's co-operation and avoids the semblance of grilling. Direction of what appears to be significant facts in the history may be obtained by such comments as "I'm interested in this ——— that you mention." Then listen attentively, sympathetically and uncritically; the patient ultimately will display his real conflicts in vivid, enlightening detail.

Further points in conducting a satisfactory psychiatric interview would be: don't argue, don't try to substitute your standards for his own, don't accept the responsibility of making major decisions for the patient, and don't allow the patient to unload his responsibilities onto you. Approach the neurotic patient rather with a manner that displays at least as much interest as your approach to his roentgenogram or electrocardiogram.

Give him the assurance that you want to help him, and encourage him to take the initiative with the realization that at least half the responsibility in the treatment is his.

Listen to him—attentively, sympathetically, noncritically, without ridicule or amusement. Remember that his problems and symptoms are not absurb to him.

Sift and interpret, isolating what, on the basis of your understanding of mental illness, are the basic etiologic factors and mechanisms. Then gradually guide the patient back to a more mature way of dealing with his problems. Show him the probable relationship between his symptoms and his maladjustments and lead him out of his neurotic escape toward reality.

Consider the patient as a whole personality. This may temper the treatment of his disease in such a way as to not just add years to life but life to years. As one patient observed while struggling along on a particularly strict medical regime, "You don't really live longer—it just seems long."

In conclusion, let me say that there should be recognition, interpretation and treatment of the various personality disturbances that come to the attention of the general practitioner. There should be a better understanding of attitudes and facts in mental illness so that the general practitioner may gain a more wholesome understanding of life for his own sake as well as for those many patients with personality problems who come to him for aid. The general practitioner is intimate with the patient and the family of the patient; he constantly observes the family situations and the family usually turns to the family physician first for help. If the general practitioner would become interested, he is in a very excellent position to make a genuine and lasting contribution to the general mental health of the community.

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Case Report

TREATMENT OF BARBITURATE POISONING WITH METRAZOL

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THE occurrence of poisoning from barbiturates is becoming increasingly common due to the greater use of these drugs and the greater ease with which patients find access to them, despite efforts to restrict their indiscriminate sale.

The following case of barbiturate poisoning is reported, not because of any new method of treatment, but because of the more persistent and successful use of metrazol which overcame the effects of the poisoning and resulted in a complete recovery of the patient. The case's history is as follows:

The patient, a white woman, aged thirty-four, was admitted to the Swedish Hospital on October 12, 1948, at 7:55 p.m. by ambulance. She was completely unconscious, both pupils were dilated, and there was poor muscle tonus. The blood pressure was 90/55, the pulse 80 and of good quality. On the basis of the history and of a previous occurrence of barbiturate poisoning, the present episode was immediately thought to be of the same character, perhaps due to sodium pentobarbital. It was impossible to determine whether the barbiturate alone had been taken, or a combination of barbiturate and amphetamine sulfate, which the patient was known to have used occasionally. It was equally impossible to learn what quantities of either or both of these drugs had been ingested.

During the first thirty minutes, 18 c.c. of metrazol were administered intravenously without any noticeable response. Five per cent glucose in saline solution was administered intravenously about half an hour after admission, and the inhalation of oxygen per BLB mask started. At various times the blood pressure dropped to 80/60 but was improved by the administration of 1 c.c. of adrenalin (1:1,000) solution intramuscularly. Following the initial dose of 18 c.c. of metrazol, doses of 3 to 5 c.c. of the same drug were given intravenously at frequent intervals so that at the end of the first twenty-four hours, 176 c.c. had been injected. During these twenty-four hours there had been only occasional, very slight responses indicated by changes in the pupillary reaction and occasional slight movements of the arms and legs while the metrazol injections were actually being given. At times the respirations became very shallow and the patient markedly cyanotic. Late in the day on October 13, the pulse rate had increased to 120 beats per minute, but the respirations remained at 18 to 20 per minute and were slightly deeper. During the evening of October 13, there seemed to be a great deal of mucus in the respiratory passages which was cleared by suction. At this time, penicillin therapy was begun and 50,000 units were administered intramuscularly every six hours. Supportive treatment was continued and about midnight on October 14 the patient began to respond during the time the suction apparatus was being used. The metrazol injections were continued at fairly frequent intervals during this entire period. About 2:30 a.m. on October 14, slight tremors and slight rigidity at the time of the administration of the metrazol became apparent. Perspiration during this time was profuse. After the recurrence of the tremors and the rigidity, the administration of metrazol was decreased and finally discontinued. About 9:30 a.m. on October 14, the woman became very restless and thrashed about in her bed. Shortly after this, she became rigid, with arching of the back, together with marked twitching of the face, extreme restlessness, and very much increased cyanosis. About 3:00 in the afternoon of the same day, a definite small convulsion was observed. At this time 100 mg. of demerol were administered. Following this the twitching and rigidity became less, although the restlessness persisted all afternoon. During the night she became relatively quieter and the cyanosis also decreased. The temperature had now risen to 102.2°, but the pulse was stronger. There was an occasional attempt at coughing when mucus seemed to obstruct the respiratory passages. About 4:00 a.m. on October 15, the patient spoke a few words and asked the nurse who she was. Shortly thereafter she called for her husband and responded slowly but poorly to questions. She seemed extremely depressed and the eyes presented a staring appearance. During the night she talked in a confused and irrational manner, attempted to pick up imaginary objects from the bed, and watched her nurse very closely.

The following morning further improvement was noted, although the cyanosis still persisted. The temperature now was 101°, the pulse 96, and the blood pressure 120/70. The patient appeared somewhat lucid and answered briefly when spoken to, although she still was very much confused. During this day, she took small amounts of liquid nourishment, and the following morning, October 16, at her regular meal apparently with enjoyment. At this time she was much quieter, less confused and more co-operative, but later in the day the confusion again increased and there were auditory, visual and sensual hallucinations, and marked excitement when talking to her husband. On October 17, the woman was still confused, laughed and cried alternately, and did not sleep although she yawned a great deal. A number of times she tried to strike her nurse and attempted to get out of bed. On October 18, the improvement was quite marked, although the patient was still incoherent at intervals and apparently had occasional delusions and hallucinations. However, she was definitely quieter and much more co-operative than before. On this day she was transferred to a sanatorium where she remained six additional days. At the conclusion of this period she had apparently recovered completely from the effects of the barbiturate poisoning.

It is worthy of comment that from the time of the patient's admission into the hospital until the appearance of the convulsion, which occurred during administration of the metrazol, a total of 259 c.c. of this drug had been given over a period of less than three days.

We feel that this case again corroborates the conclusions drawn by Eckenhoff, Schmidt, Dripps, and Kety[1] that metrazol is a potent analeptic and that "the failure of the drug as an analeptic is too often associated

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MEDICINE AND ITS PRACTITIONERS IN OLMSTED COUNTY PRIOR TO 1900

NORA H. GUTHREY

Rochester, Minnesota

(Continued from March issue)

Mary Elizabeth Bassett (Mrs. Charles W. Bray) was from July 19, 1895, to February 28, 1896, an intern at the Rochester State Hospital. She was the eighteenth appointee to the medical personnel.

Mary E. Bassett was born at Beaver Dam, Wisconsin, on November 16, 1863, the daughter of Robert Lees Bassett, a native of New Haven, Connecticut, a bookkeeper by profession, and Mary Elizabeth Stultz Bassett, a native of Beaver Dam, Wisconsin, who before her marriage was a schoolteacher.

After graduation from the high school at Hastings, Minnesota, as salutatorian, in June, 1882, Mary E. Bassett was a bookkeeper for seven years. In January, 1889, she matriculated at the University of Minnesota and in her four and a half years there she made a distinguished record. She was a member of Delta Gamma sorority and of Phi Beta Kappa; she received the degree of bachelor of science in 1893 and in June, 1895, was graduated *summa cum laude* with the degree of doctor of medicine. In December, 1895, by examination, she was licensed to practice in Minnesota.

On graduation from medical school Dr. Bassett applied for a hospital internship and, because she was a woman, received unqualified refusal in the hospitals of Minneapolis and St. Paul. She then came to Rochester to interview Dr. W. J. Mayo, in the hope of entering St. Mary's Hospital as an intern. Official internships had not yet been established at St. Mary's, but Dr. Mayo thought that she could obtain such a position at the state hospital and he helped her to do so. In her months in Rochester she did excellent work at the state hospital and made friends socially and professionally. On August 1, 1895, by unanimous vote, she became a member of the Southern Minnesota Medical Association. From Rochester she went as physician for six months to the Owatonna State School for Indigent and Dependent Children. From September, 1896, to March, 1899, she was assistant physician at the Minnesota Hospital for Insane at St. Peter.

Early in 1899 Dr. Bassett was married to Dr. Charles W. Bray (1868-1937), of Biwabik. Her husband was a graduate of the medical school of the University of Minnesota, in 1895, and for a time after graduation was associated in practice with Dr. F. H. Milligan, of Wabasha. The story of Dr. C. W. Bray's life as a citizen of Biwabik and of his work for thirty-eight years as head of the Biwabik hospital, which he established and owned, belongs to the history of medicine in St. Louis County. After her marriage Dr. Bassett Bray gave up active practice except that for several years she helped her husband with the hospital. In succeeding years, although her home and family were her primary interest, she was active in the Congregational Church, the American Red Cross, and community and county relief work. Beginning in 1937, she served as a member of the board of directors of the St. Louis County Health and Tuberculosis Association.

Dr. and Mrs. Charles W. Bray were the parents of five children, of whom one daughter, Rachel Lees Bray, died young. In 1945 there were living of the family group, Mrs. Bray, in Biwabik, and four children: Robert Bassett Bray, M.D., of Biwabik, head of the Biwabik Hospital; Elizabeth Bassett Bray, a high school teacher in Minneapolis; Philip Noyes Bray, M.D., gynecologist and obstetrician, of Duluth, during World War II a lieutenant commander in the United States Navy; and Kenneth Eben Bray, M.D., previous to 1941 in general practice at Park Rapids, during the war a major and flight surgeon in the United States Army Air Force.

Hiram C. Bear (1861-1931), member of a numerous, respected and long-established family of Olmsted County, practiced medicine from 1883 to 1890 in the village of Dover (then known as Dover Center) in the township of that name.

Henry Bear, grandfather of Hiram C. Bear, was one of the twelve children, several of whom settled in Olmsted County, of Samuel Bear and Mary Bricker Bear, natives of Pennsylvania and pioneer settlers of Ohio; Samuel Bear was an American soldier in the War of 1812. The parents of Mrs. Henry Bear were Adam and Catherine Bricker, both natives of New York and, like the Bears, pioneers in Ohio. William Bear, son of Henry Bear and father of Hiram C. Bear, was born in Seneca County, Ohio, on January 15, 1837, and came to Eyota Township, Olmsted County, Minnesota, in 1854. He was married in 1859 to Henrietta Carl, a native of Logan County, Ohio, and a daughter of Hiram Carl and Susanna Bodkin Carl, both of whom were born in Ohio; Mr. and Mrs. Carl came to Olmsted County in 1877. Mr. and Mrs. William Bear had five children, named here in the order of their birth: William; Hiram C.; George, who died in infancy; John Buty; and Alice May (Mrs. Charles W. Hughes).

Hiram C. Bear was born in 1861 in Eyota Township, and in that vicinity and in the village of Eyota obtained his early schooling. He studied medicine at the Hahnemann Medical College of Chicago, from which he was graduated in April, 1883; his Minnesota license No. 886 (H), was issued on April 22, 1884.

Liked and respected, Dr. Bear was welcomed to Dover, the scene of his first medical practice. He was married to Minnie Smith, of Plainview, Wabasha County, on January 1, 1890. In the autumn of 1890 Dr. and Mrs. Bear removed to Caldwell, Kansas. On their return to Minnesota, early in 1896, they settled in St. Charles, Winona County, and there spent the remainder of their lives. Dr. Bear had a broad and successful practice in Winona and Olmsted Counties. He died in St. Charles on June 18, 1931. Mrs. Bear survived him eleven years, and died in St. Charles on June 15, 1942.

Rose Anne Bebb, daughter of William G. Bebb and Margaret Price Bebb, was born at Portage, Wisconsin, and after early school years was educated at the University of Minnesota, receiving the degree of bachelor of literature in 1891 and the degree of doctor of medicine, *cum laude,* in 1897. On graduation in medicine she joined the staff of the Rochester State Hospital, the twenty-first professional appointee. On the resignation of Dr. Sara V. Linton Phelps, in February, 1898, Dr. Bebb became assistant physician and gynecologist, a position which she held until she resigned on March 3, 1900, to remove to New York, New York.

On arrival in New York she was invited to join the New York City Department of Health. Interested in preventive medicine, she accepted the offer and devoted some years to public health work in association with that department and other city health departments and with the United States Public Health Service. She also did research and teaching in this field at New York University. Later she resumed work in psychiatry and neurology, after two years of postgraduate study in these subjects in Europe. Much of the time subsequently she acted as consultant to private organizations and had her own institution for preventive treatment for mental disorders, with her office for years at 20 Fifth Avenue, New York. Since January, 1929, she has been associated with the New York City Department of Hospitals as a psychiatrist (1946).

Dr. Bebb has licenses to practice in three states, Minnesota, New York and Washington. While in Rochester, Minnesota, she was a member of the Olmsted County Medical Society and the Southern Minnesota Medical Association. She is a fellow of the New York Academy of Medicine (New York City), a member of New York state and county medical societies, the New York Neurological Society and the American Medical Association. She is a Presbyterian, a Republican, and a member of Alpha Phi sorority.

Dr. Bebb has recalled with pleasure her experience in the Rochester State Hospital, the interesting work and congenial associations, and has expressed gratitude to Dr. Arthur F. Kilbourne, superintendent, for opportunity and encouragement, and to Dr. William J. Mayo, who was a surgeon to the hospital at that time, for personal help and inspiration.

Edmund Beckwith, homeopathic physician and surgeon, came from Cleveland, Ohio, to Rochester, Minnesota, in January, 1868, as successor to Dr. Isaac M. Westfall, a pioneer homeopathic practitioner who was retiring from practice to devote himself to farming and dairying near Rochester.

Eckman, in 1941, in his essay, *Homeopathic and Eclectic Medicine in Minnesota,* reported that Edmund Beckwith was born at Nelson (in Portage County), Ohio, on October 14, 1836, and was graduated from the old Homeopathic Hospital College of Cleveland in 1865, and he presented the interesting speculation that Dr. Beckwith may have come from a distinguished background in homeopathic circles in Ohio: Dr. Seth R. Beckwith (1832-1905), a native of Ohio, was professor of surgery, before 1870, at the homeopathic college from which Edmund Beckwith was graduated, was one of the founders of the Pulte Medical College of Cincinnati, and was a practitioner who attracted eminent patients, among them James A. Garfield. Dr. David H. Beckwith (1825-1909) was professor of sanitary science at the same Homeopathic Hospital College, president of the Ohio state and the Cleveland city boards of health, and vice president of the Cleveland Medical Library Association.

Whatever his forebears, Edmund Beckwith practiced medicine in Rochester from January, 1868, into the autumn of 1872, and won liking and respect as physician and citizen. When he opened his office in the Union Block, on Broadway and Third Streets, his professional card stated that he made a specialty of all chronic diseases of the throat, lungs and liver, dyspepsia and the diseases of women and children. His home was at the corner of Franklin and College Streets (now Second Avenue, S. W. and Fourth Street, S. W.).

Favorable recollections of Dr. Beckwith by one of Rochester's venerable citizens have been confirmed by comments printed in the city newspapers of that day, as in the *Federal Union* of March 27, 1869:

> I desire, through this public medium, to convey my thanks to those friends who came forward with their kind proffers of assistance during the late affliction that befell my household. And also to tender my special thanks to Dr. Beckwith. I have now been the head of a

household during a period exceeding 38 years and the truth compels me to say that Dr. Beckwith is the first physician whom it has been my fortune to employ, during that entire time, who has offered essential relief to the afflicted members of my family.

J. M. Hall

And the *Rochester Post,* on March 25, 1871, bore this testimony: "Olmsted County is Homeopathic, nowadays. Dr. Beckwith, of that faith, was appointed county physician at the last session of the Board of Commissioners."

Dr. Beckwith allied himself with the Minnesota State Homeopathic Institute (founded in 1867) soon after he came to Rochester; at a convention held in St. Paul in June, 1871, he was appointed a member of two committees, one on the diseases of children and the other on contagious diseases. The next year, in June, at the annual meeting in St. Paul, he was appointed a member of the board of censors. In the meantime, in October, 1871, the Southern Minnesota Homeopathic Medical Society had been founded at Owatonna by a small group of practitioners, among whom were Dr. Beckwith and Dr. Westfall (the latter nominally retired from practice but active in organizational work). Dr. Westfall was elected president and Dr. Beckwith was made one of the board of censors and also designated to make a report on practices, at the next annual meeting, to be held in May, 1872, in Rochester.

In August, 1872, it was announced that Dr. Beckwith was leaving Rochester in the fall and going east; he had disposed of his business to Dr. W. A. Allen, of Plainview. In February, 1876, then in Muncie, Indiana, Dr. Beckwith was advertising in the Rochester papers that his residence in this city was for sale; it was not until October 8, 1886, however, that the *Post* stated, "Mrs. Dr. Beckwith has sold her former residence at the corner of College and Franklin Streets." In the autumn of 1878 Dr. Beckwith left Muncie for Faribault, Minnesota, having been appointed successor to Dr. Nichols in the "Deaf and Dumb and Blind Institute" in that city: "Dr. Beckwith is a worthy citizen and a skillful physician and the appointment is a good one." He was still in Faribault in late October, 1879.

Eckman stated that Dr. Beckwith removed to California, where he died, in Petaluma, on September 21, 1915, regarded as a pioneer practitioner of the town. The fact that Dr. Beckwith's name does not appear in the first official register of physicians of Minnesota, 1883-1890, is presumptive evidence that this physician left Minnesota before the medical practice act of 1883 went into effect.

M. D. Bedal, a graduate of the Chicago Medical College, opened an office in Leland's Block, on Broadway, Rochester, Minnesota, in June, 1874, having just completed three years in Cincinnati, Ohio, which he had spent attending lectures and practicing in the hospitals. The Rochester *Record and Union* stated, in the usual manner of early newspapers, that he was a young physician of superior attainments and excellent natural abilities. Evidence has not appeared that he remained long in Rochester. It is probable, judging from a note observed about early physicians of Mower County, that within a few months he proceeded to Brownsdale, and that in Brownsdale he omitted mention of his stay in Rochester, for it was said that he had come to Mower County from Cincinnati. From Brownsdale, in the spring of 1876, he removed to Tekamah, Burt County, Nebraska.

This Dr. Bedal should not be confused with Dr. Sylvester L. Bedal, who although never a practitioner in Olmsted County, it is believed, spent his boyhood in the county. The son of a pioneer settler near Eyota, Sylvester L. Bedal read medicine with Drs. E. C. and E. W. Cross of Rochester in the late sixties or early seventies. The only mention noted of him as a physician appeared in a local news item in

1874: Then an assistant surgeon in the United States Army, stationed in New York, he was visiting in Eyota.

J. S. Bell was a homeopathic physician and surgeon who came to Rochester, Minnesota, in September, 1868, from Naperville, Illinois, and opened an office over Andrews' store on Broadway; in January, 1870, he was changing his office to an upstairs room in Graham's Block. In the summer of 1871 it was stated that he had removed to the pretty town of Litchfield on the St. Paul and Pacific Railroad. Thereafter he made an occasional visit to Rochester.

That he was in good standing among organized homeopaths is indicated by the inclusion of information about him, albeit incorrectly, among homeopaths of Minnesota in the History of Homeopathy (1880) as follows: "Dr. J. S. Bell went to Rochester in 1869; went to Litchfield in 1873; left Litchfield in 1873." His departure from Litchfield is verified by an item in the *Rochester Post* of December 27, 1873, to the effect that Dr. J. S. Bell, formerly of Rochester, more recently of Litchfield, had been in Rochester during the week: "The doctor is seeking a more satisfactory and congenial climate."

Seth Scott Bishop, son of Lyman Bishop and Maria Probert Bishop, was born on February 7, 1852, at Fond du Lac, Wisconsin. He was graduated from the Pooler Institute, at Fond du Lac, and for three years studied at Beloit College. In 1869 he began the study of medicine with Dr. S. S. Bowers of his native city, thereafter attended three courses of lectures at the medical department of the University of the City of New York, and next enrolled at the Chicago Medical College, from which he was graduated in 1876. After practicing medicine in Fond du Lac for about a year, he decided to settle in Rochester, Minnesota, and in February, 1878, made the trip with horse and buggy, accompanied by his wife.

In Rochester Dr. Bishop took over the medical and surgical practice of Dr. St. V. Martinitz, an eclectic physician who was going to Austria to study, used Dr. Martinitz' office and lived near by. Both Dr. and Mrs. Bishop were talented musicians and entertainers; soon after their arrival Mrs. Bishop gave the first of several successful concerts, and in the same season she and her husband gave a demonstration at Heaney's Hall, exposing and explaining the tricks of spiritualistic mediums.

Established physicians of Rochester accepted Dr. Bishop as a colleague, and in 1878 he became a member of the Minnesota State Medical Society. When Dr. J. E. Bowers, superintendent of the hospital for insane, was away on a vacation, Dr. Bishop carried on his work for him. On occasion of consultation Dr. W. W. Mayo, of Rochester, and Dr. Franklin Staples, of Winona, endorsed Dr. Bishop's care of a patient.

In November, 1879, Dr. Bishop removed to Chicago, where as a specialist in diseases of the ear, nose and throat he won success and honor as surgeon and inventor of surgical instruments and therapeutic aids in that field, as writer, and as member of medical organizations (as recorded in *Physicians and Surgeons of America*, 1896).

Hamilton Philo Boardman, born in the late eighteen fifties, was the fourth child and third son of Philo Boardman and Jane Hackett Boardman, respected early settlers in Cascade Township, Olmsted County, Minnesota. His brothers were Elkanah W. Boardman and Marcus J. Boardman, his sister, Margaret Boardman (Mrs. William) Heaney.

Philo Boardman was born in Cattaraugus County, New York, on January 1, 1821, was educated in the public schools of Tioga County, and became a farmer and stock raiser. On May 5, 1855, he started for Minnesota with his wife and children; the family made the trip by ox team and wagon and arrived in Cascade Township on July 4, just in time to join the pioneer residents in celebration of Independence Day. Mr. Boardman took up a government claim in Section 15, a holding that he increased to 840 acres. After the death of his wife he remarried and, in 1879, removed to Texas, where he went into the cattle business. On leaving Olmsted County, he divided his land in Boardman Valley between his two elder sons with the understanding, it is said, that they would educate their brother Hamilton as a physician.

Hamilton P. Boardman acquired his preliminary education in the district and village schools and his first medical instruction from Dr. W. W. Mayo, of Rochester, with whom he studied in the late seventies. His formal medical training he obtained at Bellevue Hospital Medical College, in New York, from which he was graduated on March 1, 1880. In the following June the accidental death by drowning of Dr. John N. Farrand, of Oronoco, created a vacancy for a practitioner, and Dr. Boardman established himself in the village, with an office in the house of J. L. Hanson, and began his initial practice. To Oronoco at the same time came William A. Vincent, an undergraduate medical student employed at the state hospital in Rochester, purposing to hold a place in practice for his friend Edgar A. Holmes, of Eyota, Minnesota, who was about to take his degree at the Chicago Medical College. The *Oronoco Journal* announced on July 23, 1880, under the caption "And Still They Come," that all danger of death from lack of medical attendance was at an end, and called attention to the professional cards of the three young physicians.

At Oronoco it has been said, "Dr. Boardman was a very good doctor, able and fearless. He was very young, and a local boy. Dr. Holmes, older and an excellent physician, was here also and there were many well-established physicians in communities near. . . . Perhaps Dr. Boardman had more of the pioneer spirit than others—anyway, he left and went further west." His first remove, in October, 1881, was to Fisher's Landing, on Red Lake River, in Polk County, Minnesota, where he remained five years. On November 24, 1883, he qualified under the new Minnesota "Diploma Law" and received state license No. 401 (R); three days earlier he had registered in Dakota Territory. From Fisher's Landing he went, late in 1886, to Oakes, Dickey County, on the southern border of North Dakota, and there he found a widening field. After fourteen years of successful general practice he established his own hospital in Oakes, in 1901, enlarged it the following year and again in 1905.

Dr. Boardman was married in 1883 to Althea McMaster, a schoolteacher and one of the six children of Mr. and Mrs. John McMaster, pioneer settlers of Oronoco Township, Olmsted County. John McMaster was the son of William and Margery Cunningham McMaster, natives respectively of Westmoreland County and Fayette County, Pennsylvania; he came to Iowa in 1853 and to Minnesota in early 1856; his wife was Lawrence, the daughter of Andrew and Mary Lees-Hollister, natives of Scotland. Althea McMaster Boardman died in Oakes on March 24, 1903, leaving a son, Lees McMaster Boardman, about fifteen years of age. Dr. Boardman's second marriage took place in December, 1904, as noted by the *Northwestern Lancet* of January 15, 1905: "Dr. F. W. Maercklin, of Ashley, North Dakota, and Dr. H. P. Boardman, of Oakes, North Dakota, were parties to a double wedding last month. The brides were the Misses Anna Mabel and Martha M. Irwin, of Ellendale, in the same state."

Early in 1907, Dr. Boardman retired from practice and removed to California, first to Ocean Park and later to Santa Monica, where he died in 1925, survived by his wife and his son.

Wendell G. Bothwell (1844-1926), who has been described as a horse and buggy doctor of the old school, in the early spring of 1871 arrived with his wife and two infant children in the picturesque village of High Forest, Olmsted County. He found established there three physicians: Dr. Alexander Grant, inactive professionally; Dr. Stewart V. Groesbeck, popular, definitely a man of the people; and Dr. David S. Fairchild, well trained, very young and dignified and of highest ethical standing. The village having begun its long decline, in 1872, Dr. Groesbeck removed to Marshall, Minnesota, and Dr. Fairchild to Ames, Iowa.

Wendell G. Bothwell was born in Toronto, Canada, on November 10, 1844, the son of John and Adeline Maria Bothwell, natives of Scotland, who had come from Glasgow to Toronto. Around 1860 the family came west to Fond du Lac, Wisconsin, and there the boy became a baker. On the outbreak of the Civil War he joined the Union Army, with which he served until the close of hostilities. Within the next six years he obtained his medical education, and it is said that he read medicine in Rochester with Dr. Hector Galloway, who is recalled as one of the soundest of the pioneer physicians of Olmsted County. About 1868 he was married to Juliette Thomas, daughter of N. W. Thomas, a pioneer settler of Rochester; the second child of the marriage, Gertrude Bothwell, was born in Rochester in February, 1871. Although it has appeared in a medical directory that Dr. Bothwell was graduated from the Chicago Medical College in 1877, it is probable, judging from his story after he left High Forest, that he took his degree soon after studying with Dr. Galloway and that he was newly gradated when, in March, 1871, he began practice in High Forest A comment that he was in Pine Island and Goodhue some time in the early seventies has not been confirmed.

In High Forest and Rochester Dr. Bothwell is remembered as a pillar of the Methodist Church, a lively, jolly, friendly man, "quite a politician and something of a joiner." He was a member of many fraternal organizations, among them the Masonic Lodge, in which he was one of the Knights Templar, and the Independent order of Odd Fellows, and was medical examiner for various protective insurance associations. Although his practice in village and community kept him busy, it was not remunerative. A letter that Mrs. Bothwell wrote to her sister, Mrs. William Eaton, of Rochester, in the late spring of 1871, states: "The doctor has been practicing here three months and so far we have had fifty cents in money." Produce was almost too plentiful, especially when a ham weighing thirty-five pounds was brought in to apply on the doctor's bill, and ham was selling at ten cents a pound.

Juliette Thomas Bothwell died in High Forest in November, 1874, at the age of twenty-seven years, and shortly after her death, Dr. Bothwell with the two children, George, aged five years, and Gertrude, aged three years, removed to Fonda, Iowa. In Fonda, in October, 1880, he was married to Miss Ida Dodge of that place. Of this marriage there were two children, a son, Clyde Dee, born in 1882, and a daughter Helen, born in 1895. From Fonda

Dr. Bothwell removed with family in 1890 to Fairbank, Iowa, where he enjoyed many prosperous years. Gradually he discontinued medical practice and about 1916 left Fairbank for Des Moines, where for the last ten years of his life he was employed in the State House.

When Wendell G. Bothwell died in 1926, his funeral rites were conducted under the direction of the local chapter of the Grand Army of the Republic, of which he had been an honored member, and it is said that nearly all of the old soldiers in Iowa were present to pay him tribute. He was survived by his wife and by one daughter. Clyde Dee Bothwell, the son of the second marriage, was a graduate, in 1907, of the St. Louis (Missouri) College of Physicians and Surgeons and he practiced in Olwein, Iowa, from 1907 until his death on October 22, 1925. In 1945 there were living of Dr. W. G. Bothwell's family: his widow, Ida Dodge Bothwell, aged eighty-six years, in Des Moines; his daughter, Gertrude Bothwell (Mrs. J. T.) Dietz, at Fairbank, Iowa; and three grandchildren, George E. Dietz and Lewis Wendell Dietz, both in the service during World War II, and Mrs. J. A. (Dietz) Ohl, of Olwein.

Jacob Eton Bowers (1841-1922), for fifty-four years a distinguished member of Minnesota's medical profession in the field of nervous and mental diseases, was from January, 1879, to early October, 1889, a resident of Rochester, Olmsted County, as superintendent and chief physician of the Second Minnesota Hospital for Insane.

Jacob E. Bowers was born in 1841 in Berlin, Waterloo County, Province of Ontario, Canada, the son of parents who were natives of the state of Pennsylvania. He obtained his preliminary education in the schools of his birthplace and his academic training at the University of Toronto, from which he received the degree of bachelor of arts in 1864 and that of master of arts in 1865. In the next year he taught French and German at the London (Ontario) Collegiate Institute, and at the same time read medicine under a preceptor. Thereafter he spent one year at the Toronto College of Medicine and the next two years at the University of Michigan, from which he was graduated early in 1868 with the degree of doctor of medicine.

Soon after graduation Dr. Bowers came as assistant physician to the Minnesota Hospital for Insane at St. Peter (established in 1866) on the invitation of Dr. Sanuel E. Schantz, the first superintendent of the institution. When Dr. Schantz died suddenly in August, 1868, Dr. Bowers was appointed acting superintendent and so well did he manage the hospital and prepare the major part of the second annual report, for Dr. Cyrus K. Bartlett, the new superintendent who came in December, 1868, that the board of trustees allowed him full salary of superintendent. After he was relievd by Dr. Bartlett, Dr. Bowers spent several months in the East in postgraduate work. In 1876 and 1877 he traveled for eight months in Europe studying nervous and mental diseases and observing hospitals and asylums for the care of the insane. In June, 1877, he returned to his position of first assistant at St. Peter, where he remained until he came to Rochester.

Shortly after enactment of the law of March 7, 1878, which placed at Rochester the Second Minnesota Hospital for Insane (a brief history of the hospital appeared earlier in this article) and transferred to it the land and unfinished buildings of the nullified Inebriate Hospital, Dr. Bowers made his first visit to Rochester, as official representative of the board of trustees, to inspect the equipment and devise plans for adapting it to the care of the insane. The hospital opened on January 1, 1879, with Dr. Bowers as superintendent and sole physician.

To Dr. Bowers' ability as physician and executive and to his character as a humane and conscientious man were due the early growth and development of the Second Hospital for Insane into one of the finest institutions of its kind and time in the country. Dr. Bowers planned and began the beautiful landscaping of the hospital grounds, primarily for the benefit of the patients, and instituted as therapeutic measures entertainment, diversified activity and occupational therapy. His official annual reports to the board of trustees were not mere statistical compilations. Nearly sixty years after their writing they convey much of human and scientific interest.

The event that led to Dr. Bowers' resignation as superintendent of the hospital occurred on April 1, 1889, when a criminally insane Negro patient died, subsequent to a struggle with nonprofessional attendants. (At that time, for more than 850 patients, there had been allotted to the hospital only two assistant physicians.) There ensued criticism of Dr. Bowers and an exhaustive investigation that is a matter of detailed record in official documents. Newspapers of St. Paul and Minneapolis publicized the affair as a *cause célèbre.* Dr. Bowers was exonerated fully and his management of the hospital endorsed and sustained. When he resigned, he was replaced by Dr. Arthur F. Kilbourne, formerly assistant physician to the state hospital at St. Peter.

Before leaving Rochester to enter private practice as a specialist in nervous and mental diseases, Dr. Bowers was honored bv the citizens and the medical profession of the city, through the Olmsted County Society, of which he was then president. In this period also the Minnesota State Medical Society proposed a resolution of sympathy for and confidence in Dr. Bowers.

Dr. Bowers was a constructive exponent of organized medicine in various representative groups. In the Minnesota State Medical Society, of which he became a member on February 1, 1870, he served in many capacities, as corresponding secretary, member and chairman of committees, essayist, and delegate to the American Medical Association; in 1889 he was cited on the roll of honor of membership.

Jacob Eton Bowers was married on May 27, 1879, to Kate Walbank, daughter of Dr. and Mrs. S. S. Walbank, of Duluth. When they removed from Rochester, Dr. and Mrs. Bowers, after a few months in St. Paul, made their permanent home in Duluth. Sixteen years a specialist and more than thirty years an honored resident of the city, Dr. Bowers died in Duluth, at St. Luke's Hospital, on February 23, 1922, at the age of eighty-one years.

David A. S. Britts, a physician of the old school, typical of many of his time, first practiced medicine at Marion, Marion Township, Olmsted County, in the early seventies.

Born on March 1, 1844, in Montgomery County, Indiana, David A. S. Britts when a young boy removed with his parents to Wisconsin; in 1862 the family came to Dodge County, Minnesota. Soon afterward, on November 8, 1862, David Britts enlisted from Dodge County in Company M of the First Regiment of Mounted Rangers and with it served in the war with the Sioux Indians until December 7, 1863. After a period of detached service in a military hospital he re-enlisted on March 6, 1865, in Company K of the Second Regiment of Minnesota Cavalry, under General Henry H. Sibley, and again served in the Indian wars until he was mustered out on March 1, 1866. On his way home from Dakota in the winter he was injured so seriously by freezing that the government awarded him a pension. After his disharge from the army he attended school in Wasioja, Dodge County, at the famous old seminary, then the Groveland Seminary (shortly afterward, the Wesleyan Methodist Seminary), and thereafter obtained his medical training at the Chicago Medical College, probably subsequent to reading medicine with one of the well-known physicians of Dodge County.

In the summer of 1875, if not earlier, Dr. Britts began his medical practice at Marion, where he was successful, if newspaper comments are an indication. According to the *Rochester Post* of April 15, 1875, Dr. Britts announced to friends in Mantorville, Dodge County, that he had been appointed assistant room surgeon in one of the hospitals in Chicago and that he would begin the work about June 1; the next week it was stated that he would remain in Marion. Change was in his mind, for in July, 1876, he removed to Brownsdale, Mower County, where he remained until some time in 1880, with the exception of a few months in 1879 which he spent in Lanesboro, Fillmore County, as assistant surgeon at the "Lanesboro Sanitarium" of Dr. David Frank Powell (White Beaver).

Two different statements have been observed as to Mrs. Britts' maiden name: in the *Rochester Post* of November 28, 1879, there was announced the marriage on November 23 of Dr. D. A. Britts to Alice M. Stevens; in the *History of Mower County,* of 1844, the name appears as "Ella Stevens Hamlin."

From Brownsdale Dr. Britts went in 1880 to Clearwater, in Wright County. Under the Act of 1887 he received a state exemption certificate. Prior to 1904 he settled in Minneapolis, at 39 Washington Avenue South, and continuously from that time he was listed in directories as practicing medicine in that city; his name appeared in the first edition of the directory of the Amercan Medical Association, in 1906, and was included for the last time in the edition of 1914.

William P. Broderick (1859-1899), an assistant physician, twenty-second appointee on the staff of the Second Minnesota Hospital for Insane, to succeed Dr. H. H. Herzog, resigned, began his work in Rochester on March 25, 1899. He died suddenly in his quarters on April 8, 1899, from Bright's disease.

William P. Broderick was born on June 15, 1859, at Havana, Schuyler County, New York. In 1884 he was graduated from the Bellevue Hospital Medical College; the next seven years he was with one of the Manhattan state state hospitals on Ward's Island; the following eight years he was on the staff of the Northern Hospital for the Insane at Winnebago, Wisconsin, and from that institution came to Rochester. His wife had died in 1894, leaving a little daughter Lucretia, two years old. Dr. Broderick was survived by the child, a sister, Mrs. T. R. Palmer, of St. Paul, and a brother, George C. Broderick, of Norfolk, Virginia.

(To be continued in May issue)

President's Letter

The AMA in 1950

The medical profession has outgrown many of its precedents. Chief among the discarded patterns is the familiar concept of the Family Doctor as a kindly, horse-and-buggy-propelled individual, whose only concern was the patients of his own community.

Perhaps I should not say that we have discarded this concept . . . for the ideals of service held by the horse-and-buggy doctor are an integral part of medical practice. But the medical profession has moved on to a wider perimeter of interest and to heavier and more varied responsibilities.

The history of the American Medical Association demonstrates this widening field of service. It has become increasingly active, over a period of years, in protecting the public against fraudulent and harmful medical practices, drugs, medicines and appliances. It has demonstrated a deep concern over the cost and availability of medical care; hence experimentation with the now accepted plans for voluntary health insurance and numerous studies into the equitable distribution of physicians. Ever-occupied with the necessity for higher quality medical care, the AMA has been instrumental in abolishing medical schools of inferior grade and tightening requirements for the remaining schools, until today there are *only* Class A medical schools. The American physician is the best physician in the world, with the most intensive training and education and the highest ethical standards.

Facts for Americans

In 1949 and 1950, the AMA has gone into the problems of medicine even more comprehensively. Committees have been sent abroad to study medical care plans; commissions have been organized, with AMA financing, to explore possible solutions to such problems as chronic and catastrophic illness. And to meet the challenge of knowledge-hungry, security-tempted Americans, the National Education Campaign continues. The Campaign, which gained sufficient momentum to block compulsory health legislation in the 81st Congress, will carry on the logical conclusions of the program—the possession, by every citizen, of the facts about medical care and costs, the easy transfer of control from medicine to all economy, the comparison of health standards under government medicine and private medicine.

Program Grows

To support its growing program of public service activities, the AMA has established twenty-five dollar dues. These dues have been set in a democratic fashion: no physician will be deprived of his county or state medical association membership through failure to pay AMA dues; affiliate members and those for whom dues-paying would constitute a hardship are exempted from payment.

The dues are far from excessive, particularly in view of their translatable value in human health, freedom and happiness. I feel sure that the physicians of Minnesota, in keeping with the traditions of medicine here, will maintain membership in the AMA, indicating by that membership that they support, actively and personally, the broad, humanitarian program of the American Medical Association.

President, Minnesota State Medical Association

◆ Editorial ◆

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

AMA DUES FOR 1950

ESTABLISHMENT of dues for members of the American Medical Association has come as a surprise to many. Actually, the surprising fact is that the AMA has not required dues payment earlier in its 103-year history.

Physicians have been able to enjoy the privileges of American Medical Association membership without cost mainly because of the organization's multi-million-dollar publishing business. This enterprise has balanced the deficits and profits of at least ten medical specialty journals, the AMA Directory and the Cumulative Index Medicus, in addition to financing numerous costly public service activities, typified by Council on Pharmacy and Chemistry.

Doctor and public alike owe a great deal to the American Medical Association for its stewardship of medical standards and its protective attitude toward the nation's health.

As the economic, social and political life of America has become more complex, so have the duties and responsibilities of the medical practitioner and the organization that represents him to the public. The North Central area has contributed to the pressure for an expanded AMA program. More than a decade ago, the North Central Conference felt that the American Medical Association should interest itself more deeply in governmental affairs. Accordingly, the Washington office and the Council on Medical Service were established and the scope of both offices has widened during the years.

Currently, the American Medical Association is sending committees abroad to study medical education, hospitals and medical care plans, has established commissions for the consideration of such corrosive problems as chronic and catastrophic illness, and is conducting a campaign of national education to acquaint the American public with the facts about private and government medical practice.

If the American Medical Association is to continue to guard the public's health and, obliquely, its freedom, additional financing is necessary.

American Medical Association dues are payable now. Checks should be made out to the AMA and returned to the secretary of the *county* medical society, who will relay the dues to the state association office and from there they will go to AMA headquarters.

Payment of the dues is voluntary and does not affect membership in county and state associations, but like other obligations of democratic organizations, payment of these dues is the responsibility of every physician who is interested in maintaining medical standards and furthering the health goals of the nation.

THE STATUS OF VITAMIN CONSUMPTION

IN 1947, $188,000,000 was spent for vitamins in this country. The manufacture and sale of vitamins has thus become one of the great national industries.

The question has been raised repeatedly whether the millions spent yearly for vitamins have been wisely spent. Other questions which naturally have arisen in regard to the vitamins are: Is the average American diet actually deficient in vitamins and, if so, in which vitamins is it deficient? How can one determine the need of supplemental vitamins in the absence of clinical symptoms? If no avitaminosis exists, does the administration of additional vitamins serve any useful purpose and can it do harm?

An exhaustive review of the whole subject of vitamin supplementation in Health and Disease by Perry J. Culver appeared in the last three issues of the *New England Journal of Medicine* published in 1949. He answers the questions submitted above to his own satisfaction and with little room for criticism.

While admitting, of course, that there is such a condition as avitaminosis as for instance in chronic alcoholism, debilitating diseases associated with diarrhea (we assume) and in infants whose orange juice as well as milk is boiled, Culver questions the need for any widespread consumption of purified vitamin supplements by the public at large. He believes the average diet in America is sufficient to prevent clinical and subclinical vitamin deficiency and that there is very little vitamin deficiency in our country today. What there was ten years ago has been gradually disappearing and began to disappear before the practice of enriching flour began. He cannot explain this phenomenon and apparently does not believe the expenditure of millions of dollars for supplemental vitamins is responsible. He believes that many estimates of the incidence of vitamin deficiency in the United States have been based on the presence of supposed signs of vitamin deficiency which have been lately proven to be non-specific in character. He also believes that many claims that the American diet is inadequate are based on the consideration of the dietary allowance recommended by the National Research Council as minimal instead of optimal.

The author claims that very little evidence has been offered that supplemental vitamins added to the average diet do anything in the way of increasing fitness, increasing tolerance to heat or cold, improving well-being, reducing absenteeism from work, increasing appetite or ability to work.

In the last four years between three and four thousand medical articles on the subject of vitamins have appeared. Innumerable cases have been reported in which large doses of certain vitamins have cured a great variety of abnormal conditions. Oftentimes the therapeutic claims have not been substantiated by other investigators. Occasionally quackery has made its appearance, as in the case of the enthusiasm for Vitamin E in the treatment of heart disease. Shute, of London, Ontario, has been claiming improvement the last three years in 80 per cent of cases of angina pectoris, rheumatic heart disease, and hypertensive heart disease, from the use of Vitamin E; results which others have not been able to duplicate. Just recently the Council on Pharmacy and Chemistry (J.A.M.A., Feb. 18, 1950) has indicated the fraudulent nature of Shute's claims. Doubtless many of the claims for the therapeutic value of other vitamins will not stand the test of time and experience.

In the use of vitamins, the pendulum has swung far, and doubtless more are used than are warranted. Enormous doses can be harmful, but this probably seldom occurs. The pendulum will swing back and may have started its back-swing already. Let us not allow it to swing so far that we withhold the use of vitamins when they are indicated. An infant off the breast still needs supplemental vitamins. They are indicated when for any reason a diet may be lacking in vitamin content or absorption of vitamin is deficient. The therapeutic limitations of the newer vitamins—folic acid, B_{12} and rutin—is rapidly being determined.

The reality of sub-clinical avitaminosis and the impossibility of determining its presence frequently lead to the prescribing of a mixed vitamin pill, with a large question mark as to its need in the mind of the prescribing physician. The psychological value of such a prescription, however, is often very real, and vitamins have replaced Elixir I.Q. and S. Moderation in all things applies to the dispensing and consumption of vitamins. That we—both the public and the profession—have gone to inexcusable extremes in the matter of vitamins is certain.

ALAS, A LACK!

BESIDES the dearth of the teaching of the humanities in premedical education, there is practically a total loss of the aura of medical history in the medical school itself.

What is the result?

The junior professors and Fellows have lost sight of the humanistic values inherent in the past. Their task is piled up with the factual load of biochemical and mechanical aids to diagnosis; the spectre of research; the pressure from the Juggernaut press; and the "Boards." In other words, they have no time. They know nothing of the continuity of growth, its significance and its pedagogical value.

Lecturing on medical history to undergraduates may be a waste of time. In the selection of teachers, however, one of the requisites should be at least one essay by the candidate on some great physician of the past. A club or seminar for the study of history in this group is just as essential to the preparation for teach-

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MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

MORE AND MORE SECURITY MEANS "PIGGY-BACK" RIDE

Frank Dickinson, head of the AMA Bureau of Medical Economic Research, in a factual and convincing speech at the University of Wisconsin recently, scored the pending dangers of more and more government security. Citing simple facts and using them without distortion, Dickinson made a sensible argument against the security-extenders, asking the vital question, "Do we want to ride piggy-back to the grave on the shoulders of those who are now children?"

Explaining his contention that, with more security, those nearest the grave would depend on those nearest the cradle, he said:

> ". . . health progress is at once the measure and the core of social progress. Length of life is a comprehensive, rough measure of social progress—a quarter of a century in the heyday of the Roman Empire (for upper class Romans), a third of a century in Germany in 1700; life expectancy at birth was almost a half century in 1900 and almost three score years and ten in 1950 in the United States. Ruskin said it so beautifully, delightfully, in one sentence: 'There is no wealth but life.'
>
> "I would impress upon you the simple fact that, during the first half of the twentieth century, we have not only enjoyed man's greatest half century but we have also endured a social revolution—a social revolution more important than the fall of the Roman Empire, the Renaissance, the French Revolution, or the Industrial Revolution. This *latest social revolution* lies in the fact that the distance from the cradle to the grave is much longer for the average man. In 1900 there was no sentiment for 'cradle to the grave' schemes. Most of us living in 1900 were close to the cradle. Most of the people living today are far from their cradle days. This social revolution is the basis for the sentiment for 'cradle to the grave' schemes, as Sir William Beveridge called them; other people use different names. We are faced primarily with medical and health progress in half a century which have come so fast that we have difficulty digesting them into our social institutions and into our way of life. That, I submit, is the general problem. It breaks down into many specific problems."

He was talking about what sociologists call the "cultural lag"—the principle that, with rapid advancement of science and medicine, society is unable to absorb such developments into its social thinking with similar speed, resulting in an apparently backward social conscience. In reality, it is not backward social conscience, but scientific and medical advancement.

Cites Fifty Years of Health Progress

Health progress statistics since 1900 show with remarkable clarity how rapid the improvement has been. Itemization of fifty years of progress showed that:

> "One thousand babies born in 1900 were destined to live 49,000 years.
>
> One thousand babies born in 1949 were destined to live 68,000 years.
>
> Since 1900 the entire population of the United States has doubled. (75 to 150 million).
>
> Since 1900 the population age 65 and over has quadrupled. (3 to 12 million).
>
> The LOWEST state maternal mortality rate in 1933 was 4.3.
>
> The HIGHEST state maternal mortality rate in 1947 was 2.6."

Dickinson's main point was that society cannot cope with this improvement rate rapidly enough to suit the social planners. Those proposing more and more security for longer and longer periods, would force Congress into long-range and all-inclusive measures of the type which, they think, would bring America up to the present level of medical advancement. Dickinson declares:

> "It is the disturbing premise of the practice of medicine that the doctor cannot win. Let's say that when he saves a woman in childbirth he just adds her name to the list of potential victims of cancer years later. Let's say the patient saved is a laboring man with pneumonia; all the doctor does is to add one more name to the list of potential candidates for heart disease. The doctor

cannot win! Those who study these problems must come to understand the limitations on medical practice. They must understand that there are limitations on medical progress itself. The doctor can *only* change the age and cause of death. Medical care can never be adequate, despite the fact that the term 'adequate' is used by those who seek to decide who and how and where and why medical care will be provided.

"There is no adequate medical care for the family of a dying man. But the quest for better health, for longer life, for improved medical care will never end—it will go on and on. All that medical care can become is better. We are not talking about a black and white question. We are talking about a problem in which there are only shades of grey. We can only improve; we cannot perfect."

Dickinson concludes, saying:

"The fundamental question underlying all of this discussion today, as I see it, is simply this: What kind of a standard of social morality do you want in this country? That is the basic issue. Do you want this exploitation of youth, do you want to fasten yourselves on the paychecks of youth and ride piggy-back . . . to the grave, or do you want to pay your own way? Many years ago when we became old enough to vote, we faced a world in which we knew that there was ahead of us a lifetime of working, earning, and saving. . . . Do we want to press down upon the brow of our own youth this crown of security thorns? Health progress has given us the voting power."

SECURITY—FOR ALL?—FOREVER?

More security, for more people—even for babies who could theoretically retire at birth—is not beyond feasibility in the eyes of a clever economist. Writing to Charles E. Bradley, Ph.D., of the AMA Bureau of Medical Economic Research, he suggests:

"Every new-born child in the United States would receive from the Government a promissory note for $20,000 at 3 per cent interest, payable in 20 years.

"The 3 per cent would return $50 monthly to go to the child's parents until the child is 20.

"Each year during the 20 years, the Government would pay $1,000 into a sinking fund for the retirement of the note; and, when the child reached the age of 20, the Government would give him or her the $20,000 it had paid into the sinking fund.

"Boys and girls of 20 who elected to get married would thus have a capital of $40,000 to care for them, without work, for the remainder of their lives."

The writer carried this sort of thing much further, increasing benefits through government aids and schemes. Although exaggerated, his "dissertation" shows the extent to which his opponents, the socialistic planners, could carry their thinking. It sounds fine, full of years of "free" security, but in the practical application of the theory, would lead to a flagrant infringement on the rights of Americans to earn their own living, accumulate private property, and work out their own problems. Utopia such as suggested by this writer, is an actual insult to the American spirit of free competition. Its impossibility and impracticability is seen clearly in a definition from "The Comma": "Utopia: The conditions that will prevail when Americans enjoy 1949 wages, 1926 dividends, 1932 prices and 1910 taxes."

FOREFATHERS WARNED OF TOO MUCH SECURITY

Too much security means too much government spending; Americans are constantly giving more and more money to government, which in turn means less and less for the individual. Lincoln expressed it this way:

"Property is the fruit of labor; property is desirable; is a positive good in the world. That some should be rich shows that others may become rich, and hence is just encouragement to industry and enterprise. . . . Let not him who is houseless pull down the house of another, but let him labor diligently to build one for himself, thus by example assuring that his own shall be safe from violence. . . . I take it that it is best for all to leave each man free to acquire property as fast as he can. Some will get wealthy. I don't believe in a law to prevent a man from getting rich; it would do more harm than good."

Thomas Jefferson's agrarian philosophy included criticism of too much government interference and piling up of a large public debt. He said:

"I place economy among the first and most important virtues, and public debt as the greatest of dangers to be feared. . . . To preserve our independence, we must not let our rulers load us with perpetual debt. . . . We must make our choice between economy and liberty or profusion and servitude."

Another revered forefather recognized, too, that socialism is a doctrine of futility—an acceptance of mediocrity. Benjamin Franklin warned:

"They that can give up essential liberty to obtain a little temporary safety deserve neither liberty nor safety."

The Figures Show—

Gigantic government spending is now unprecedented. *The Journal of the Kansas Medical Society* quotes enlightening statistics on the scope of phenomenal federal budget figures compared to ordinary values:

> "If all the money in this bountiful nation was divided equally, your share would be $182.58. But your share of the national debt is $2,875.
>
> "If everyone in the United States cashed in all his life insurance policies it would bring in 44 billion dollars—less than enough to run our federal government for one year.
>
> "If every farmer sold his farm, his farm equipment and his livestock the total would be 25 billion dollars—less than enough to operate the federal government for seven months.
>
> "If Kansas sold everything at its assessed valuation and gave the entire proceeds to the federal government, it would operate our country a little more than one month."

Compared with our national income, the federal debt outstanding in 1929 equaled 19c for each dollar of national income for that year, according to the *Pittsburgh Medical Bulletin.* In 1939, the figure rose to 58c of debt per dollar of income. In 1949, the debt per dollar of income rose to the alarming figure of $1.15. And all this deficit has been incurred during years of relative prosperity. Common sense would seem to dictate that surpluses should be built up in good times, and that deficit spending to stimulate business activity should be reserved for poor times. If Americans are indifferent to the fact that government expenditures exceed income they may easily fall into what economist Edwin G. Nourse calls "the easy acceptance of deficit as a way of life."

Or in Terms of Time

This deficit spending situation is given added emphasis by a comparison, in terms of time, of free American and socialistic British values. The average American factory worker must work about 8 minutes to earn enough to buy five pounds of potatoes, or a quart of milk, or a package of cigarettes. In London, the average English worker must work 14 minutes for the potatoes, 19 minutes for the milk, and 1 hour and 20 minutes for the cigarettes.

Here are a few more items:

	America	*England*
3 lbs. sugar	11½ minutes	28 minutes
1 pair of overalls	3 hours	8¼ hours
20 gal. gasoline	3½ hours	15½ hours
1 pair of women's shoes	4 hours	16¼ hours

And yet intelligent Americans are being urged to adopt some plans similar to England's socialism. To-the-point comments on this comparison come from the *Pittsburgh Medical Bulletin:*

> "We American husbands are grateful, indeed, that we don't have to buy the little woman's shoes in England; it seems bad enough here.
>
> "Isn't it insulting to our intelligence and the intelligence of our laboring men to have our heads of government urge us to adopt the socialistic plans of England?
>
> "If wide publicity were given to the above statistics—in our newspapers, our union publications and trade journals, our government wouldn't have a chance of discarding our free enterprise system for socialism."

SHORT-SIGHTEDNESS MAY BE GREATEST DISADVANTAGE

The *Industrial News Review* has placed the emphasis in the right place by warning that there is great danger in a mere fight against socialized medicine, socialized grocery stores or the single socialization of any profession or business. It says:

> "It may be that the greatest danger is short-sightedness. The man who runs a store may feel, for instance, that government ownership of some great industry, such as electric power, is of small moment to him. The man who works in a factory may see no personal menace in a law that would give the government broad controls over doctors. A labor leader may welcome more and more governmental domination of industrial leaders with whom he has differences. This is the way dictatorship comes about. One group is taken over at a time, while the other groups stand by and argue that it's no affair of theirs. Then, when it is too late, we find to our horror that we're all in the same boat. . . . The road to statism is marked with cheerful signs—human welfare, a better life for the masses of people, security against everything."

Divide and conquer is excellent strategy. It swallows its victims before they know they're bitten.

FEDERAL GOVERNMENT IS A BIG BUSINESS

The federal government is an ever-increasing competitor with free enterprise. According to Samuel B. Pettengill, columnist, radio commentator and former congressman, the government now operates light and power plants, builds and rents houses, "buys potatoes that rot and butter that turns rancid." In a speech delivered in Chicago recently, he enumerates government businesses:

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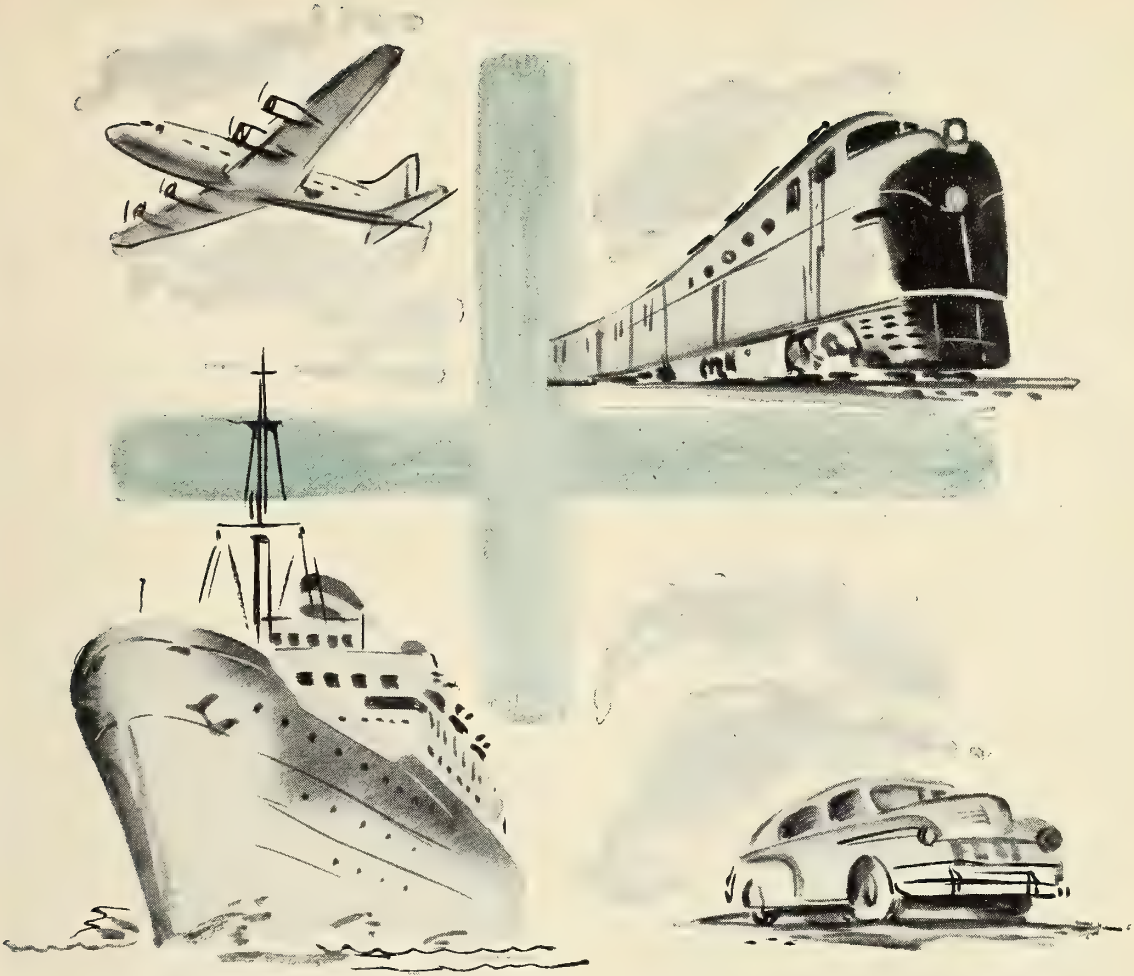

Airsickness, trainsickness, seasickness, carsickness—all respond to treatment with Dramamine (brand of dimenhydrinate.)

DRAMAMINE*—for the Prevention and Treatment of Motion Sickness. *Trademark of G. D. Searle & Co.

ACCEPTED COUNCIL ON PHARMACY AND CHEMISTRY AMERICAN MEDICAL ASSOCIATION

RESEARCH IN THE SERVICE OF MEDICINE **SEARLE**

(Continued from Page 386)

"It is in the banking business, financing even such things as race tracks, beauty parlors and soda fountains.

"It is heavily in the insurance business for war veterans and their dependents.

"It is in the peanut, wheat, cotton, beans, turpentine, turkey and wool business.

"It owns at least two railroads, barge lines, merchant marine ships.

"It smelts metals, refines sugar, proposes to build steel plants.

"It operates scores of hospitals and hires doctors, dentists, oculists, and surgeons.

"It is in the business of fixing wages, pensions, prices, profits, interest rates and dividends.

"It proposes to finance public education from the kindergarten through college and look after everybody from the cradle to the grave."

It's a Question of Social Welfare

All this is done in the name of social welfare. Social welfare in itself is not particularly harmful. It is the method by which it is obtained that is of primary concern to all Americans who enjoy their freedom and want to continue to enjoy it. Many Americans have spoken out on this matter with wisdom and sincerity. Among them is Herman W. Steinkraus, president of the Bridgeport Brass company and spokesman for the United States Chamber of Commerce. Speaking on the Town Meeting of the Air on January 24, 1950, he said:

"I believe in social welfare, yes, but not government-owned, propelled, controlled social welfare. I believe in social welfare that doesn't choke the individual initiative; that places a responsibility on the citizens, on the community, and on the states; one where the federal government steps in to help only when private and local efforts are not enough; where money is given only when needed and not handed out to any group, regardless of their individual hardship or prosperity.

"The best thing we can do to give true social welfare to our people is to encourage thrift, give incentives for greater production and lower prices, to stimulate business growth and more job opportunities, to get our country on a sound financial basis, and let the dollar be worth a dollar. If we can't do it now, then when in heaven's name are we going to start?

"We all know the American system has given the greatest social welfare any people have enjoyed in the world's history. Socialism is the road to bankruptcy, a wrecked nation, and complete government control. The welfare state is on the same road.

"Remember what Lenin said in Russia: 'We shall force the United States to spend itself into destruction.'

"I say, let's be wise. Stop, look, and listen. Let's not believe government can do all these things for us without all of us having to pay for them and losing our freedom, too."

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

230 Lowry Medical Arts Building
Saint Paul, Minnesota

Julian F. DuBois, M.D., Secretary

Saint Paul Woman Pays $500 Fine Imposed for Violation of Federal Pure Food and Drug Act

Re. United States of America vs. Carrie Grace Colwell, also known as Mrs. J. H. Colwell, trading as the Colwell Radium Company.

On February 23, 1950, Mrs. Carrie Grace Colwell, sixty-eight years of age, 257 Johnson Parkway, Saint Paul, Minnesota, paid a fine of $500 in the United States District Court at Saint Paul, Minnesota. Mrs. Colwell had been convicted by a jury on December 1, 1947, on four counts of violating the Federal Food, Drug and Cosmetic Act. On December 16, 1947, Mrs. Colwell was sentenced by Judge Dennis F. Donovan to pay fines totalling $500 and she was placed on probation for two years. The charge against Mrs. Colwell was that she had shipped drugs in interstate commerce that were misbranded and mislabeled. The charges grew out of the shipment of so-called "radium ore" that was represented as being efficacious in the treatment of cancer, tumors, poliomyelitis, Bright's disease, liver disorders and numerous other conditions. During the two years that Mrs. Colwell was on probation, she did not pay her fine. Accordingly, on December 15, 1949, her probation was continued for three additional years. On February 15, 1950, a warrant was issued for Mrs. Colwell's arrest for violating her probation by not reporting to the probation officer. On February 23, 1950, Mrs. Colwell paid the $500 fine. On March 6, 1950, Judge Donovan signed an order terminating Mrs. Colwell's probation.

ALAS, A LACK!

(Continued from Page 383)

ing as is their scientific requisite. Equipped with a knowledge of the past, the opportunity to impart this knowledge to the students at bedside clinics and conferences would enrich the student and stimulate him toward a more vital concept of his work.

The undergraduate of today is as much a hero worshipper as was the student of fifty years ago. He usually picks out, consciously or unconsciously, a member of the faculty whom he imitates as much as possible. If this professor has a cultural attitude in his teaching, the student will readily seek his fill of humanistic values. Without this cultural side of medicine, the danger to the young recruit might very well be that his practice will be mechanical, unhuman, depraved to a "business" level. The medical schools of today lack pitifully this fundamental in pedagogy.

H. L. U.

Announcing . . .

The First
NEUROLOGIC CENTER FOR CIVILIANS
in the Northwest

Governor Luther Youngdahl formally opened and dedicated our neurologic center and opened the doors to the public on February 12, 1950, thereby offering the following new services:

1) treatment of the hemiplegic patient
2) multiple sclerosis
3) retraining of speech disorders
4) paraplegia and other paralyses
5) ataxias

Qualified neurologists and neurosurgeons staff this center. The staff also includes qualified personnel who have been trained in special therapy, occupational therapy, corrective therapy and physical therapy.

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Offering a High Standard of Facilities for 25 Years

Reports and Announcements

STATE MEETING

The annual meeting of the Minnesota State Medical Association will be held in Duluth, June 12, 13, 14, 1950.

A symposium on "Advances and Investigation in Surgery of the Heart" and one on "New Advances in Treatment of Joint Disease" centering around cortisone, ACTH and gold salts will take place. Wednesday will be largely devoted to considerations of atomic energy, the afternoon being devoted to a conference on "Atomic Energy in War and Peace" open to the public.

The Northwest Pediatric Society is sponsoring Dr. Armand J. Quick, of the Marquette University School of Medicine, who will speak on "The Common Hemorrhagic Diseases of Childhood." The Arthur H. Sanford lectureship in pathology will be given by Dr. Ancel Keys, whose subject will be "The Diet and Cardiovascular Disease." Presenting the Russell D. Carman memorial lecture will be Dr. Eugene Pendergrass, Professor of Radiology at the University of Pennsylvania.

AMERICAN BOARD OF OPHTHALMOLOGY

Candidates for the certificate of the American Board of Ophthalmology are accepted for examination on the evidence of a written qualifying test. Applications are now being accepted for the 1951 written test and will be considered in order of receipt until the quota is filled. Practical examinations for acceptable candidates in 1950 will be held in Boston from May 22 to 26, in Chicago from October 2 to 6, and on the west coast in January, 1951. Further information can be obtained from the executive office of the board, 56 Ivie Road, Cape Cottage, Maine.

MENTAL HEALTH WEEK

With approximately half the hospital beds in the United States at any one time occupied by the mentally ill, and with at least half the patients of all physicians having complaints caused by or closely related to emotional difficulties, the medical profession has an important stake in National Mental Health Week, April 23-29, according to Dr. Burtrum C. Schiele, University of Minnesota Professor of Psychiatry.

An important development is the training of medical students in comprehensive medicine, with the integration of psychiatry and medicine of vital significance, according to Dr. Schiele. "All medical students should be aware of the possible relationship between life situations, personal factors and emotions in physiological upheavals and disturbances."

Mental Health Week is sponsored nationally by a broad group of organizations headed by the National Committee for Mental Hygiene, the National Mental Health Foundation, the National Institute of Mental Health, the American Psychiatric Association, and the Junior Chamber of Commerce. The Minnesota Mental Hygiene Society is co-ordinating activities within the state, with the assistance of the Minnesota Department of Health, the State Division of Public Institutions, and other state agencies.

MINNESOTA SOCIETY OF NEUROLOGY AND PSYCHIATRY

The regular meeting of the Minnesota Society of Neurology and Psychiatry was held at the Town and Country Club, Saint Paul, on March 14. The scientific program consisted of the presentation of two papers: "Psychiatry in Geriatrics" by Dr. Walter P. Gardner, and "The Electroencephalogram in Brain Tumors" by Dr. Philip K. Arzt.

CRIPPLED CHILDREN CLINICS

The spring clinic schedule for crippled children, prepared by the Division of Social Welfare, Medical Services Unit, is as follows (clinics have already been held at St. Cloud, Austin and Detroit Lakes):

Place	*Date*	*Building*	*Counties*
Worthington	April 15	Grade School	Nobles Jackson Pipestone Cottonwood Murray Rock
Grand Rapids	April 22	Senior High	Itasca Cass
Thief River Falls	April 29	High School	Pennington Marshall Red Lake Roseau Kittson
Faribault	May 6	High School	Rice, Carver Goodhue, Scott Steel, Dakota
Brainerd	May 13	Franklin Jr. High	Crow Wing Wadena Mille Lacs Todd, Cass Aitkin
Morris	May 20	High School	Stevens, Grant Pope, Traverse Douglas Bigstone
Moose Lake	May 27	High School	Aitkin, Cook Carlton, Lake Pine
International Falls	June 3	Alexander Baker School	Koochiching Lake of Woods

COURSE IN ENDOCRINOLOGY

A postgraduate course in endocrinology will be held by the American College of Physicians at the La Salle Hotel, Chicago, Illinois, from May 15 to 20.

The course will provide an intensive review of recent developments in the field of endocrinology, devoting a considerable amount of time to the clinical uses of ACTH and cortisone and related steroids. Special attention will

(Continued on Page 392)

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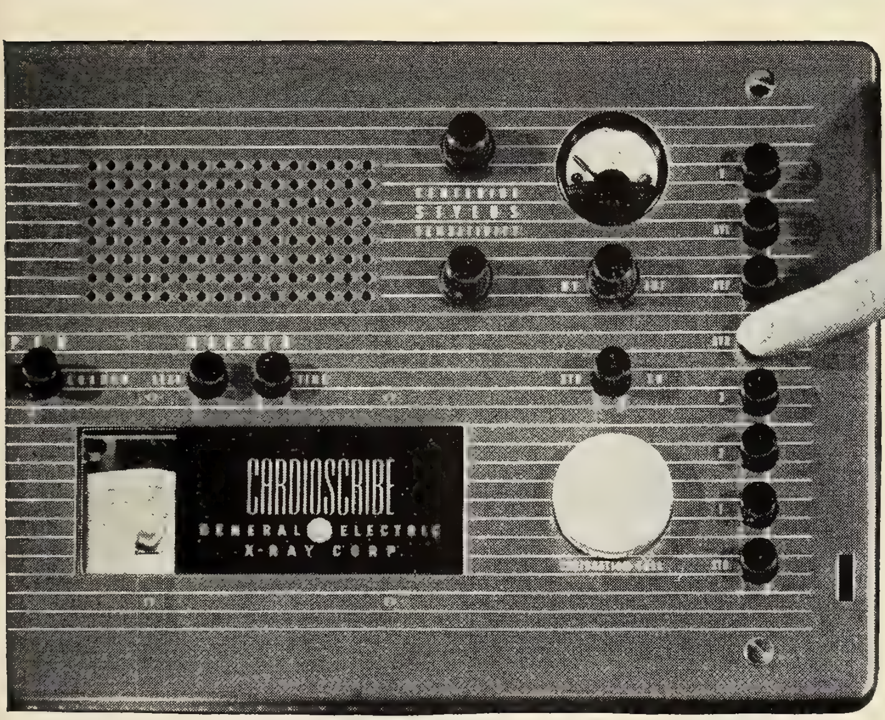
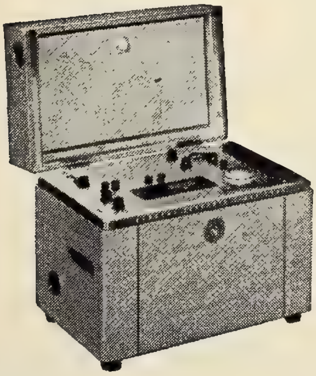


High-Fidelity Heart Recordings



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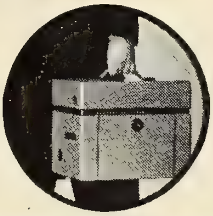

Portability — Compact, and entirely self-contained in blond mahogany cabinet.

COURSE IN ENDOCRINOLOGY

(Continued from Page 390)

be paid to clinical disorders. Instructors from all areas of the United States and Canada will participate in the course, which will consist of lectures, round-table luncheon discussions and presentations of patients.

Fees for the course will be $30 for members of the American College of Physicians and $60 for non-members. Further information can be obtained by writing the director of the course, Willard O. Thompson, M.D., 700 North Michigan Avenue, Chicago 11, Ill.

CONTINUATION COURSE

A continuation course in proctology will be presented at the Center for Continuation Study of the University of Minnesota from May 22 to 27. Dr. George Thiele of Kansas City will be the visiting faculty member for the course and will discuss "The Relationship of Anorectal Diseases to General Medical Problems" and "Office Management of Common Proctologic Complaints."

Throughout the course, emphasis will be placed on anorectal and colonic lesions most frequently seen by practicing physicians. The presentation will be by means of lectures, operative clinics, motion pictures, and seminars. Faculty for the course will be made up of clinical and full-time members of the staff of the University of Minnesota Medical School and the Mayo Foundation.

SEMINAR ON PSYCHOSOMATIC MEDICINE

Three seminar lectures on psychomatic medicine in two Minnesota areas are scheduled for April—the month in which National Mental Health Week falls. National Mental Health Week is scheduled for April 23-29 and is sponsored nationally by a broad group of organizations headed by the National Committee for Mental Hygiene, the National Mental Health Foundation, the National Institute of Mental Health, the American Psychiatric Association, and the Junior Chamber of Commerce. The Minnesota Mental Hygiene Society is co-ordinating activities within the state, with the assistance of the Minnesota Department of Health, the State Division of Public Institutions, and other agencies.

Professional groups in the Mankato area will hear two lectures on mental health, one by Dr. Reynold A. Jensen, associate professor of pediatrics and psychiatry, and the other by Dr. C. Knight Aldrich, assistant professor of psychiatry at the University of Minnesota. On April 26, during National Mental Health Week, Dr. Aldrich will speak in the Austin area to physicians, dentists, nurses, and pharmacists.

Mankato's University of Minnesota postgraduate seminar for physicians started February 28. Physicians have been meeting at the Mankato State Teachers College Tuesday evenings at 7:45. Eight consecutive weekly sessions on heart disease, cancer control, and mental health have been scheduled, with the last one held April 25. Faculty members of the University of Minnesota School of Medicine and the Mayo Foundation for Education and Research have spoken to the medical group.

(Continued on Page 394)

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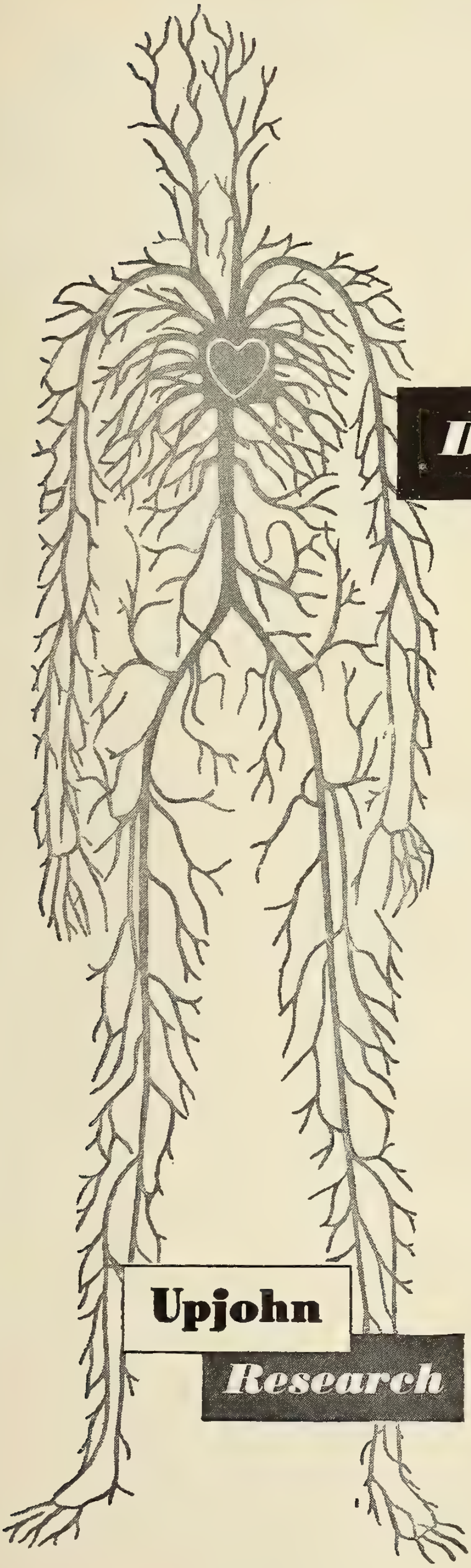

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SEMINAR ON PSYCHOSOMATIC MEDICINE

(Continued from Page 392)

The Wednesday evening medical seminar at Austin started March 15 and will conclude May 10. St. Olaf Hospital in Austin has been the site of the eight weekly meetings.

The medical seminars in these two areas have stimulated other professional groups to develop programs devoted to heart disease, cancer control, and mental health as related to the specific professions. Dentists and nurses of Austin and Mankato areas have been meeting for sessions of their own, and then have been joining with the physicians for the last four medical lectures. Pharmacists have been invited to attend those lectures of any group which they feel are of most professional value to them.

Five of the seven seminars offered during the 1949-50 season have already been completed. Bemidji, Fergus Falls, Duluth, St. Cloud and Winona have held professional postgraduate education courses for personnel within their areas.

With the completion of courses now being currently held in Austin and Mankato Minnesota's unique education program will draw to a close this year. Projected on a five-year basis, the program is expected eventually to reach most Minnesota communities.

Seven Minnesota cities will be chosen for similar seminars next year.

Sponsors of the program for physicians have been the University of Minnesota School of Medicine, the Minnesota State Medical Association, the Minnesota Department of Health, and local professional organizations. Other sponsors are the Minnesota Division of the American Cancer Society, the Minnesota Heart Association, and the Minnesota Mental Hygiene Society.

Cook County Graduate School of Medicine
ANNOUNCES CONTINUOUS COURSES

SURGERY—Intensive Course in Surgical Technic, two weeks, starting April 17, May 15, June 19.
Surgical Technic, Surgical Anatomy and Clinical Surgery, four weeks, starting April 3, May 1, June 5.
Personal Course in General Surgery, two weeks, starting April 17.
Surgery of Colon and Rectum, one week, starting April 10, May 15.
Esophageal Surgery, one week, starting June 5.
Breast and Thyroid Surgery, one week, starting June 26.
Thoracic Surgery, one week, starting June 12.
Gallbladder Surgery, ten hours, starting April 24.
Fractures and Traumatic Surgery, two weeks, starting June 12.
Basic Principles in General Surgery, two weeks, starting, September 11.
GYNECOLOGY—Intensive Course, two weeks, starting April 17, June 19.
Vaginal Approach to Pelvic Surgery, one week, starting May 15.
OBSTETRICS—Intensive Course, two weeks, starting April 3, June 5.
PEDIATRICS—Intensive Course, two weeks, starting April 3.
Personal Course in Cerebral Palsy, two weeks, starting July 31.
Personal Course in Diagnosis and Treatment of Congenital Malformations of the Heart, two weeks, starting June 5.
MEDICINE—Intensive General Course, two weeks, starting April 24.
Electrocardiography and Heart Disease, two weeks, starting July 17.
Hematology, one week, starting May 8.
Gastro-enterology, two weeks, starting May 15.
Liver and Biliary Diseases, one week, starting June 5.
Gastroscopy, two weeks, starting May 15, June 12.

General, Intensive and Special Courses in all Branches of Medicine, Surgery and the Specialties.

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FREEBORN COUNTY SOCIETY

At a meeting of the Freeborn County Medical Society in Albert Lea on February 23, the principal speaker was Dr. R. W. Ridley, Rochester, who spoke on newer developments in the field of anesthesia.

Society members reported at the meeting that $1,000 had been contributed to the Naeve Hospital equipment fund. The money had been earned by the society in a school immunization campaign last fall.

HENNEPIN COUNTY SOCIETY

Dr. Reuben F. Erickson, Edina, has been elected president of the Hennepin County Medical Society, to take office on October 2. He will succeed Dr. Robert F. McGandy in the post.

Other new officers of the society include Dr. William R. Jones and Dr. Robert E. Priest, vice presidents, and Dr. George N. Aagaard and Dr. Ralph H. Creighton, members of the board of directors.

RANGE MEDICAL SOCIETY

Dr. Gordon M. Erskine, Grand Rapids, was installed as president of the Range Medical Society at a meeting in Hibbing on February 28. Other officers of the society include Dr. J. A. Malmstrom, Virginia, vice president, and Dr. Robert E. Hansen, Hibbing, secretary.

WASHINGTON COUNTY SOCIETY

The monthly meeting of the Washington County Medical Society was held on March 14. Following dinner and a business session, two colored motion pictures, "Cardiac Arrhythmias" and "Animated Hematology," were shown.

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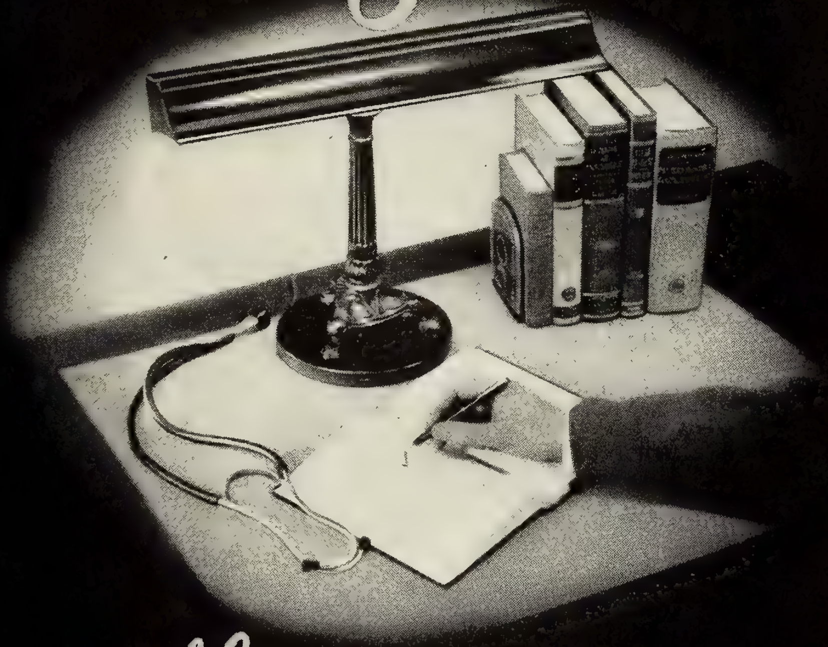

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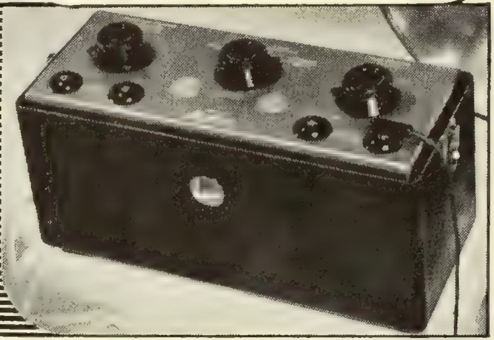

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Minnesota Academy of Medicine

Meeting of December 14, 1949

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, December 14, 1949. Dinner was served at 7 o'clock, and the meeting was called to order at 8:10 by the President, Dr. J. A. Lepak.

There were fifty members and three guests present.

Minutes of the November meeting were read and approved.

Dr. Lepak gave a talk on various phases of the Constitution and By-Laws, also election of new members. It was voted to continue the extra assessment of $5 per member for 1950. Motions were carried that the Academy vote $100 to the Litzenberg Memorial Fund, and $100 contribution to the Bell Pathological Museum.

The following officers were elected for 1950:

President............William Hanson, Minneapolis
Vice President.......William Hengstler, Saint Paul
Secretary-Treasurer..Wallace P. Ritchie, Saint Paul

The scientific program followed.

Dr. Charles Rea presented his paper on "Banti's Disease Treated by Splenectomy and Later by Gastric Resection." (See page 347.)

Dr. Walter P. Gardner, of St. Paul, read his Inaugural Thesis on "Psychiatry in Geriatrics." (See page 353.)

The meeting was adjourned.

A. E. Cardle, M.D., *Secretary*

In Memoriam

JOHN DOUGLAS WATSON

Dr. John D. Watson, for many years a practicing physician at Holdingford, Minnesota, died on February 13, 1950.

Dr. Watson was born at Socorro, New Mexico, November 19, 1885. He obtained his education at London, Ontario, in the local high school and at the London Collegiate Institute. His medical degree was obtained at the University of Western Ontario at London, Ontario, in 1907. After taking postgraduate work at the Fort Douglas Army Hospital at Salt Lake City he practiced at Welton, Iowa, from 1907 to 1915.

Dr. Watson was a member of the Upper Mississippi Medical Society, the Minnesota State and American Medical Associations.

Dr. Watson is survived by his widow; a daughter, Mrs. Peter Holliday of Chicago; a son, Dr. William J. Watson of Saint Paul and a brother, Dr. A. M. Watson.

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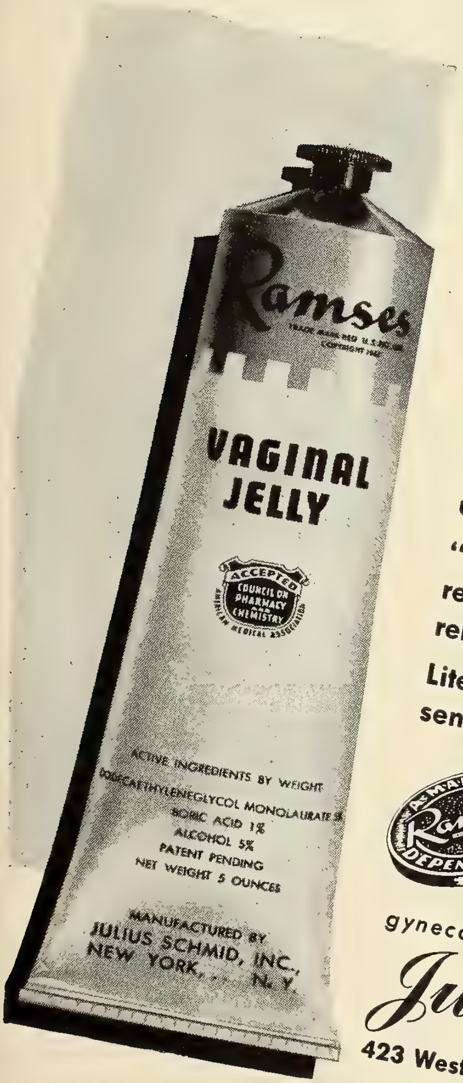
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Woman's Auxiliary

NATIONAL OFFICER ADDRESSES STATE AUXILIARY

Mrs. Paul C. Craig, Reading, Pennsylvania, representing the national board of the Woman's Auxiliary to the American Medical Association, urged Minnesota doctors' wives to become familiar with the many health bills pending in Congress, so they could "give facts and thus help people form an opinion based upon facts."

Mrs. Craig spoke at the mid-winter board meeting and luncheon of the Woman's Auxiliary to the Minnesota State Medical association February 23, at the Minnesota Club in St. Paul. She paid tribute to the public service activities of the state medical association and its auxiliary for their use of Regional Health Days to develop community responsibility.

In discussing current legislation, Mrs. Craig emphasized that the medical profession must oppose those bills which it considers damaging to health progress, but, she added, the medical profession should support "much positive health legislation."

CHRONIC ILLNESS BEING STUDIED

She noted that the problem of the chronically ill is one of the unsolved medical problems of modern life. A commission for the study of this problem has been set up by the AMA, the American Public Welfare association, the American Public Health association and the American Hospital association. A grant of $25,000 from the AMA is supporting this project.

"It is not well known," Mrs. Craig stated, "that the chronically ill are not covered in the omnibus compulsory tax medical care program supported by the federal government."

VOLUNTARY PLAN INCREASE SCORED

Mrs. Craig, wife of a Reading, Pennsylvania, ophthalmologist, called attention to the rapid development of all types of voluntary health insurance plans throughout the country. She informed auxiliary members, that on the basis of growth, by the end of 1950, 77 million persons will be covered for hospital bills, 50 million will be insured against surgical costs and 21 million will be insured against medical costs, using the varied types of voluntary insurance now available in this country.

Discussing a recent fifteen month study of medical services done in New York state, Mrs. Craig pointed out that "the pressing need is not for additional facilities but for improving diagnostic services and in modernizing old buildings." The survey concluded that additional state aid is needed for mental and tuberculosis patients.

Mrs. Craig stated, "Already in New York 57 per cent of the population is covered by some type of voluntary

Doctor . . .

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verage . . . growing rapidly through 1949. On the asis of this expansion in coverage, it is quite possible enroll up to 85 per cent of the population in Blue ross, Blue Shield and commercial plans."

Auxiliary members were asked to become familiar ith the findings of the Hoover Commission report, and use this book for book reviews.

Mrs. Craig was introduced by Dr. F. J. Elias, Duluth, resident of the Minnesota State Medical association. r. Elias praised the auxiliary, saying that it was and is a major part in our campaign." Citing the difficulty in valuating the accomplishments of any organization in a rogram of this type, he gave credit to the auxiliary for s help in three categories: (1) the distribution of amphlets, (2) opinion guidance which showed up favorbly in the Minnesota Poll, and (3) the increase in the umber of people covered by Blue Shield, Blue Cross nd other voluntary plans.

Nearly 100 women attended the board meeting and ncheon which was open to all state auxiliary members. Irs. H. E. Bakkila, Duluth, auxiliary president, preded during the meeting. Mrs. Charles W. Waas, 993 omo Blvd., St. Paul, president-elect, was in charge of cal arrangements.

HEALTH DAY PLANS ARRANGED

Mrs. S. N. Litman

Another in the series of Health Days, to be held April 14, is being arranged by the Woman's Auxiliary to the St. Louis County Medical Society in co-operation with the medical society, the Duluth Health Council and the Minnesota Department of Health and related organizations. Health Days, initiated by the Auxiliary to the Minnesota State Medical association, have gained national recognition and are being used by other states who realize their value in bringing health problems before interested people in their respective communities.

St. Louis, Cook, and Carlton counties will participate in the Health Day, which is planned for the purpose of bringing to the people an increased awareness of community health problems and ways of meeting them more effectively. Medical talks, discussions, exhibits and motion pictures will be on the day's program in the Spalding Hotel, Duluth.

Mrs. P. S. Rudie, general chairman, is being assisted by Mrs. Harold Wahlquist, health day chairman for the Minnesota State Medical auxiliary, Wallace Fulton of the Minnesota Department of Health, and Mrs. Ruth Hosted, secretary of the Duluth Health Council.

Statesmen and economists all over the world seem to realize the close relation between health and economy, health and social conditions, health and the standard of living.—*WHO Newsletter,* July-August, 1949.

◆ Of General Interest ◆

All Minnesota physicians are invited to submit to Minnesota Medicine items "of general interest" concerning themselves or their colleagues. To ensure accuracy and completeness, it is suggested that items submitted contain the answers to the age-old newspaper questions: who, what, where, when and (in some cases) why. Only the facts are necessary, since items can be rewritten for consistency of style.

* * *

Dr. John T. Smiley has been appointed by the Minnesota Department of Health to the position of director of Health District No. 6, comprising Anoka, Chisago, Dakota, rural Hennepin, Isanti, Kanabec, rural Ramsey, Washington and Wright Counties. Dr. Smiley was formerly assistant superintendent of Ancker Hospital, Saint Paul, superintendent of the county hospital at Stockton, California, chief of the Bureau of Hospital Licensing and Inspection, California State Department of Health, and chief medical officer of the Ledo Road project in the Burma-India Theater during World War II.

* * *

Dr. and Mrs. J. W. Stuhr of Stillwater recently returned from a two-week visit in California.

* * *

The opening of offices at 1253 Medical Arts Building, Minneapolis, has been announced by **Dr. John K. Grotting,** who is limiting his practice to plastic and reconstructive surgery.

Dr. Grotting received training in general and plastic surgery at the Mayo Clinic, where he has been for the past four years. He holds a master of science degree in plastic surgery granted by the University of Minnesota.

At a meeting of the Polk County (Wisconsin) Medical Society at Balsam Lake, Wisconsin, on March 16, **Dr. William B. Stromme** of Minneapolis presented a paper on "Dystocia."

* * *

Dr. Don V. Smith joined the staff of the Blue Earth Medical Center on March 1. A graduate of Northwestern University Medical School in 1943, Dr. Smith served his internship at Cook County Hospital, Chicago, and then served in the Army for two years, part of the time in Japan. He completed a one-year surgical residency at Eitel Hospital, Minneapolis, and then became associated in practice with Dr. George Eitel in Minneapolis. In his new situation in Blue Earth he is associated with Dr. George W. Drexler and Dr. Ralph E. Wenzel.

* * *

Dr. Henry E. Michelson, professor of dermatology at the University of Minnesota Medical School, delivered the Alembert Winthrop Brayton birthday dinner address at Indianapolis on March 9. His subject was "Cutaneous Tuberculosis and Sarcoidosis."

Dr. A. M. Watson of Royalton was one of the chief defense witnesses when the people of Morrison County recently went "on trial" for not doing all they could to improve public health in their own communities. There were twenty-one witnesses in all at the mock trial held in the County Court House at Little Falls. Those for the defense described the many types of health services available to residents of the county, but those for the prosecution made it clear that the people were not using these services fully or effectively, nor doing all they could to sustain, extend and improve them.

The trial was planned by the county nursing service, with help from the district and state offices of the Minnesota Department of Health, and was used to promote an immunization campaign about to start in the county.

* * *

"Effect of Beta Irradiation on Gastric Acidity" was the title of a paper presented by Dr. R. F. Hedin, Dr. W. R. Miller and D. G. Jelatis, Sc.D., at a meeting of the Central Surgical Association in Chicago on February 16 to 18. Dr. Hedin and Dr. Miller are associated with the Interstate Clinic in Red Wing.

* * *

Members of the Sedgwick County Medical Society, meeting at Wichita, Kansas, on March 2, heard **Dr. Albert V. Stoesser,** Minneapolis, speak on "Uses and Abuses of the Antihistamines."

* * *

The directors of the Passano Foundation have announced that its award for 1950 will be a dual one, the $5,000 cash award going to **Dr. Edward C. Kendall** and **Dr. Philip S. Hench,** both of the Mayo Clinic, for their studies in clinical physiology as related to the administration of cortisone and related hormones. The award will be presented at the annual award dinner, held this year at the St. Francis Hotel in San Francisco on June 28, during the week of the A.M.A. annual meeting. The Passano Foundation was established in 1943 by the Williams and Wilkins Company, medical publishers, to aid in the advancement of medical research.

* * *

It was announced on March 3 that **Dr. Gordon W. Franklin** planned to visit Northome to look over facilities for both office and living quarters. He planned, it was said, to begin practice in Northome in July, following completion of his internship. Northome has been without the full-time services of a physician for two years.

* * *

Dr. Nels Strandjord of the Lenont-Peterson Clinic, Virginia, gave a talk on congenital heart disease at a meeting of the Virginia Lions Club on March 1.

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If you are in the $12,000-$14,000 income tax bracket and purchase an investment to yield 2.50% you will realize only 1.55% if the income is taxable but will receive the full 2.50% if it is not taxable.

If you are in the $20,000-$22,000 income tax bracket and purchase an investment to yield 3.00% you will realize only 1.54% if the income is taxable but will receive the full 3.00% if it is not taxable.

We have a handy chart which will show such comparisons for the various taxable income brackets and will be pleased to send you one on your request.

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Dr. Gordon Kamman, Saint Paul, was the principal speaker at a meeting of the Stearns-Benton County Medical Society in St. Cloud on March 14. The title of his address was "The Present Status of Shock Therapies and Psychosurgery." Earlier in the month, Dr. Kamman gave the eighth and final lecture of the eight-week seminar on heart disease, cancer and psychosomatic medicine held in Duluth.

* * *

The recently constructed **Litchfield Clinic** building was opened to the public during the first week of March. The one-story modern-designed building houses the offices of Dr. Harold E. Wilmot, Dr. Cecil A. Wilmot, Dr. Donald E. Dille and Dr. W. A. Chadbourn. In addition to providing three rooms for each physician, the structure contains a minor surgery room, x-ray room, laboratory, library and drug room.

* * *

Dr. Alson E. Braley, a former resident of Lake Mills, has been appointed professor and head of the department of ophthalmology in the University of Iowa College of Medicine.

* * *

Dr. A. B. Baker was a speaker at the general meeting of the Saint Paul Branch of the American Association of University Women in Saint Paul on March 7. Dr. Baker, professor and director of the division of neurology at the University of Minnesota, spoke on "Study, Treatment and Diseases of the Nervous System." He also showed the motion picture, "The Journey Back."

* * *

Among Minnesota physicians attending the second annual scientific assembly of the American Academy of General Practice, held in St. Louis, February 20 to 23, were Dr. O. B. Fesenmaier, New Ulm; Dr. Roger G. Hassett, Mankato, and Dr. J. Earl Schroeppel, Winthrop.

* * *

Dr. Donald E. Stewart, of the Northwestern Clinic, Crookston, attended a three-day cancer-detection clinic at the University of Minnesota during the middle of February.

* * *

Cancer research funds totaling $61,071 have been granted to the University of Minnesota for the year beginning July 1, it was announced early in March.

* * *

The dangers of socialized medicine were described by **Dr. Willard Akins** of Red Wing in a talk given at a meeting of the Men's Club of the First Lutheran Church in Red Wing on February 27.

* * *

Dr. Ruth E. Boynton has been named president of the State Board of Health, succeeding Dr. T. B. Magath, who recently resigned. Dr. Boynton has served as director of the Students' Health Service at the University of Minnesota since 1936 and has been professor of preventive medicine and public health since 1938. She has been a member of the State Board of Health since 1939 and served as president of it in 1945.

* * *

Dr. Francis J. Crombie has opened new offices at 1234 Division Street, South St. Paul. The interior of the building at that address has been completely remodeled and partitioned into ten rooms. All rooms have been sound-proofed and redecorated. The offices include examination rooms, x-ray room, minor surgery room, nurse's office, and a large reception room.

* * *

Dr. S. A. Slater, Worthington, attended a two-day meeting of the board of the National Tuberculosis Association in Chicago on February 3 and 4.

* * *

On February 19 the engagement of Miss Angela Marie Jelinek to **Dr. Louis B. Kucera** was announced. Miss Jelinek is a resident of Saint Paul, and Dr. Kucera is a former resident of Owatonna. The wedding will be held in the fall.

* * *

Dr. Malcolm Hargraves, Rochester, was the principal speaker at a meeting of the Martin County Conservation Club in Fairmont on February 14. Dr. Hargraves, well known for his conservation work, is a past president of the Minnesota chapter of the Izaak Walton League.

* * *

In a talk before the **Hennepin County Medical Society** on March 6, a Scottish surgeon, T. H. Craw-

(Continued on Page 404)

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(Continued from Page 402)

ford Barclay, said that the patient, the general practitioner and the specialist are all unhappy under socialized medicine in Britain. Mr. Barclay—to use the British method of referring to surgeons—said that the patient feels he is not given enough time, the general practitioner is overworked and underpaid, and the specialist is "under the thumb" of the government, with the government refusing to promote younger specialists to adequately paying positions. Mr. Barclay described one London physician who was forced to see 150 patients in five hours; and he stated that tuberculosis is one of Britain's major problems, since not enough facilities are available for housing the numerous infected persons.

Mr. Barclay holds a one-year United States Public Health Service fellowship, and he is now studying at the University of Minnesota.

* * *

At the first 1950 quarterly meeting of the Minnesota Occupational Therapy Association, held in Minneapolis on March 4, **Dr. Frederic J. Kottke,** of the University of Minnesota department of physical medicine, was the principal speaker.

* * *

Dr. Warren W. Haesly, Wykoff, attended the 100th anniversary convention of the Chicago Medical Society held during the first week of March. While in Chicago, Dr. Haesly also attended the alumni conference of St. Luke's Hospital, Chicago. Both gatherings featured color television demonstrations of surgical operations.

* * *

Dr. and Mrs. Edward A. Colp, Robbinsdale, spent the month of February on a trip through the Rio Grande Valley and Mexico. On his return, Dr. Colp opened new medical offices at 3859 W. Broadway.

* * *

At the meeting of the Scott County board of county commissioners on February 14, **Dr. H. M. Juergens,** Belle Plaine, was named coroner of Scott County. He succeeds Dr. H. W. Havel, who resigned recently.

* * *

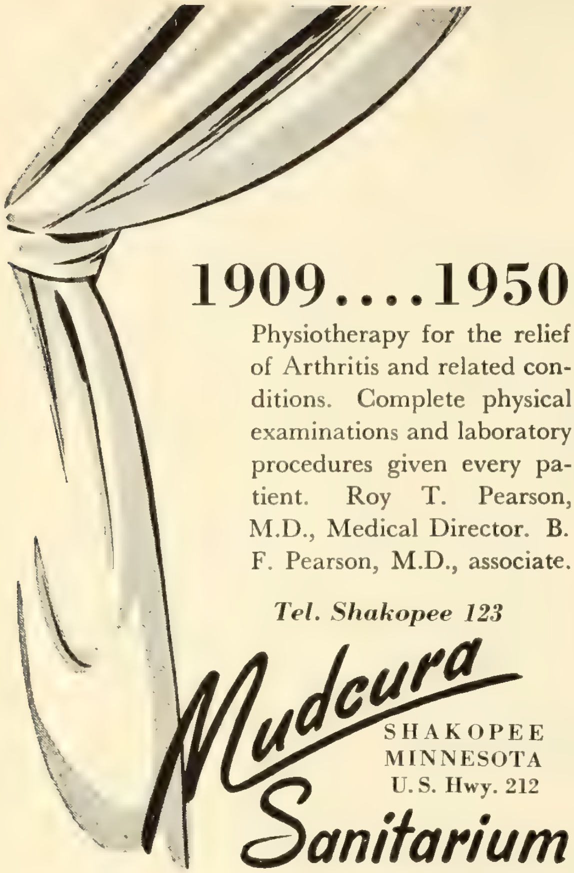
Forty-five members of the **American Association of Obstetricians, Gynecologists and Abdominal Surgeons** held a two-day mid-winter clinic in Rochester on February 24 and 25. Among speakers at the clinic were Dr. Robert B. Wilson, Dr. James S. Hunter, Dr. Arthur B. Hunt and Dr. John E. Faber, members of the Mayo Clinic section on obstetrics and gynecology.

* * *

Dr. Francis J. Schnugg, Brainerd, was narrator for a motion picture on the heart fund campaign shown at a meeting of the Lions, Rotary and Exchange Clubs in Brainerd on February 15.

* * *

It was announced on February 16 that **Dr. Virginia Gross** had arrived at the Fergus Falls State Hospital to become a member of the staff. Formerly



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1. *Withering, W.:* An account of the Foxglove, London, 1785.
2. *Rimmerman, A. B.:* Digilanid and the Therapy of Congestive Heart Disease, Am. J. M. Sc. *209:* 33-41 (Jan.) 1945.

Literature giving further details about Digilanid and Physician's Trial Supply are available on request.

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---

of Provo, Utah, she is the wife of Dr. Mackenzie Gross, who became a staff member of the Fergus Falls hospital a short time ago.

* * *

"Socialized Medicine" was the subject discussed by Dr. **L. W. Morsman**, Hibbing, on a broadcast from he Hibbing radio station on February 28.

* * *

The work of **Dr. Suad A. Niazi,** a medical fellow n surgery at the **University of Minnesota**, was described in "Blueprint for Understanding," a recently published thirty-year review of the Institute of International Education, New York. Dr. Niazi, a physician in the Royal Medical College in Baghdad, Iraq, came to the University of Minnesota Medical School in 1947 under a State Department fellowship administered through the institute. The story of Dr. Niazi, who in 1949 won a Damon Runyan clinical fellowship from the American Cancer Society for further research, was used in the institute's publication as an example of important work being done by foreign students who are studying in the United States.

* * *

Dr. Robert R. Remsberg of Tracy took a one-week course in surgery and obstetrics at the Cook County Hospital, Chicago, early in March.

* * *

At the annual meeting of the Morrison County Public Health Advisory Board in Swanville on February 7, **Dr. Edwin G. Knight** of Swanville was elected chairman of the board.

Two Saint Paul physicians discussed "The Effect of Fear on Sex Attitudes," on February 27 at the first of three meetings arranged by the Saint Paul Council of Parent-Teacher Associations. Dr. Charles L. Steinberg, a pediatrician, and Dr. Philip K. Arzt, a psychiatrist, were the principal speakers at the panel discussion, which was open to both parochial and public school PTA units. The series was planned to offer advice to parents concerned about the emotional effect of sex crime publicity on children.

* * *

Miss Marjorie Wolfenden, formerly of Granville, Wisconsin, was married to **Dr. Edward Zupanc**, formerly of Gilbert, in a ceremony performed at Menomonee Falls, Wisconsin, on February 17.

Previous to her marriage, Miss Wolfenden was a nurse at General Hospital Madison, Wisconsin. Dr. Zupanc, a graduate of the University of Minnesota Medical School, recently completed a fellowship in pediatrics at the University of Wisconsin. He is now practicing medicine in Duluth.

* * *

Dr. Harold W. Hermann, formerly of Rochester, has begun the practice of pediatrics in Minneapolis. He was graduated from the University of Minnesota Medical School in 1946.

* * *

Dr. Robert A. Good, of the University of Minnesota Medical School, was one of twenty medical scientists named for $25,000 grants from the John and Mary R. Markle Foundation, New York. The

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* * *

At the annual meeting of the Minnesota Mental Health Society in Minneapolis on March 1, **Dr. Ralph Rossen,** Minnesota mental health commissioner, stated in an address, "It is imperative that each of our state hospitals develop a psychiatric center for its community. Only then will we attract people who need preventative treatment and properly prepared workers to treat them."

* * *

Dr. Charles Vandersluis, Bemidji, attended a four-day clinical session held by the Chicago Medical Society during the first week of March.

* * *

Two physicians were chosen to head the Steele County School Survey Committee at a meeting in Owatonna on February 17. Dr. Benedik Melby, Blooming Prairie, was elected chairman of the committee, and Dr. Edward Q. Ertel, Ellendale, was named vice chairman.

* * *

Dr. C. G. Uhley, Crookston, spoke on socialized medicine at a meeting of the Lowell Farm Bureau on February 20.

* * *

Dr. Joseph Ryan, director of the outpatient department at St. Joseph's Hospital, Saint Paul, was the guest speaker at a meeting of the St. Thomas College Mathematics and Physics Club on February 20. Dr. Ryan, who was formerly associated with the Oak Ridge atomic project, spoke on "Effects of the Atomic Bomb on Human Beings."

* * *

Achievements in fighting Minneapolis health problems and agency activities, as reported to the public through newspaper stories, were described by **Dr. Frank J. Hill,** Minneapolis health commissioner, at a meeting of the Community Health Service board of directors late in February.

* * *

Open house was held at the newly completed **Pine River Clinic** on February 11. Constructed by Dr. C. M. Zeigler and Dr. A. T. Rozycki, both of Pine River the clinic is a one-story modern-designed structure, 66 by 24 feet. It houses offices for the physicians, examination rooms, laboratory, x-ray room, reception room and an emergency treatment room.

* * *

Dr. E. J. Lillehei, Robbinsdale, has been named a member of the executive committee at St. Barnabas Hospital, Minneapolis.

* * *

At the meeting of the **Saint Paul Surgical Society** on February 15, papers were presented by Dr. Charles T. Eginton, Saint Paul, and Dr. Bernard Zimmerman, fellow in surgery at the University of Minnesota. Dr. Eginton discussed "Megacolon," and Dr.

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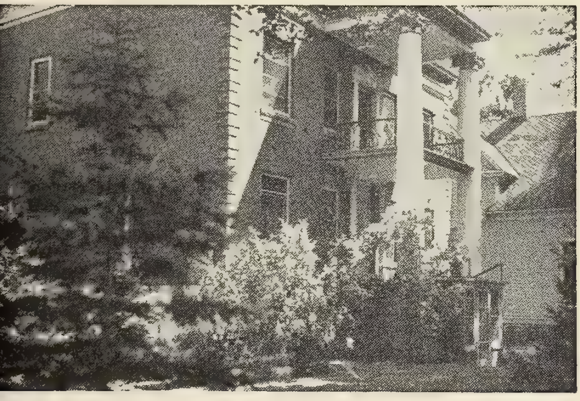

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Zimmerman spoke on "Adrenal Function in the Postoperative Patient."

* * *

Dr. Louis Flynn, Saint Paul, has replaced Dr. William Fleeson, Minneapolis, as consulting psychiatrist at the state child guidance clinic in Fargo. Dr. Fleeson resigned because of the press of private practice in the Twin Cities. Plans call for Dr. Flynn to spend Thursday and Friday of each week at the Fargo clinic.

* * *

Dr. Frank J. Elias, Duluth, was the principal speaker at a meeting of the St. Louis County Medical Society Auxiliary in Duluth on February 14.

* * *

Among those in attendance at the fifth National Conference on Rural Health and Medical Service, held in Kansas City, Missouri, during the middle of February, was **Dr. John K. Butler** of Carlton.

* * *

Dr. Leonard A. Lang, Minneapolis, gave a talk on "Diagnosis and Treatment of Carcinoma of the Uterus" at a meeting of the Cascade County Medical Society in Great Falls, Montana, on February 17. Dr. Lang is clinical assistant professor of obstetrics and gynecology at the University of Minnesota and chief of the department of gynecology at General Hospital and St. Mary's Hospital in Minneapolis.

* * *

Dr. Walter Alvarez, senior consultant in the division of medicine at the Mayo Clinic, has been appointed medical editor of "G.P.," a journal published by the American Academy of General Practice. Dr. Alvarez was selected to succeed Dr. F. Kenneth Albrecht, who died following an automobile accident in March.

A graduate of Stanford University Medical School, Dr. Alvarez became associated with the Mayo Clinic in 1926. Having reached the age of retirement in the Mayo Foundation, he is moving to Chicago to carry on his duties as editor of "G.P."

* * *

Dr. Stanley P. Stone, Minneapolis, has moved his offices into his newly constructed clinic building at Lowry and Queen Avenues North.

* * *

A history of socialized medicine was presented by **Dr. L. W. Morsman**, Hibbing, at a meeting of the Community Club in Brown early in February.

* * *

It was announced early in February that **Dr. George Kleifgen** of Park Rapids was moving his offices into a newly constructed Medical Arts Buildin in Park Rapids. Dr. Kleifgen, who has practiced in Park Rapids for ten months, has taken three years of postgraduate training in surgery at the Mayo Clinic.

* * *

Rochester's new **public health center** was opened to the public on March 6. The only complete pub-

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lic health center in the Midwest, the $270,000 building houses the Rochester-Olmsted County Health Department and the District 3 office of the State Department of Health. The building, which is dedicated to the memory of Dr. Charles H. Mayo, was financed primarily by a gift from the Mayo Association, an appropriation by the city of Rochester, and a Federal grant. Modern in design, it provides facilities for all the health and welfare activities of the area.

* * *

Dr. Edward S. Rall, a fellow in the Mayo Foundation, was named winner of the American Goiter Association VanMeter essay award on March 9. His essay, which was presented at the Association's annual meeting in Houston, Texas, dealt with the identification of iodine compounds in blood and urine.

HOSPITAL NEWS

Falls Memorial Hospital, International Falls.—At the annual meeting of the medical staff of the Falls Memorial Hospital, Dr. C. C. Craig was elected chief-of-staff, and Dr. Edward B. Kinports was named secretary-treasurer.

* * *

St. Mary's Hospital, Minneapolis, has completed construction work on a new postanesthesia room—a recovery room for patients after operation. Patients are taken to the room following operation and are kept there under the care of a special staff until they have completely recovered from the anesthesia. Equipment is available for immediate action in case emergency treatment becomes necessary. The room was set up under the direction of Dr. Stanley Wesolowski, director of anesthesiology at the hospital.

* * *

It was reported on February 23 that construction work on the new **Renville County Hospital** at Olivia was progressing rapidly. Plans called for construction of partitions and plastering early in the spring. When it was learned that the project would require an extra $60,000, a campaign was started in the surrounding villages and towns. By late February cash and pledges had almost totaled that amount.

* * *

The new neurologic center at **Glenwood Hills Hospitals** was officially opened on February 12. The opening day ceremonies were highlighted by talks by Governor Luther Youngdahl, Raymond T. Rascop, hospital superintendent, Dr. Julius Johnson, chief-of-staff, and Raymond Ewald, member of the board of trustees.

* * *

Ways and means for launching a successful campaign for funds for the **Aitkin Community Hospital** were discussed at a special meeting called by the hospital board on March 6. Civic organizations throughout the area sent representatives to give advice on setting up the project.

BLUE CROSS-BLUE SHIELD NEWS

Blue Shield claims in January totalled 2,575, representng 3,145 medical-surgical services. Blue Shield services endered at homes accounted for eight claims, services n doctors' offices for 520 claims, and services in hospitals for 2,047 claims.

Surgical procedures accounted for 1,543 Blue Shield services in January, medical for 999 services, and X-ray, anesthesia, and other related services for 603 Blue Shield services rendered in January.

Single subscribers with incomes of less than $2,000 annually, and family subscribers with incomes of less than $3,000 annually, who receive unlimited subscriber benefits, incurred 885 claims representing 34.4 per cent of the total claims paid in January. Although this is not the greatest number of claims paid in any one month for unlimited subscribers, it represents the highest percentage of total claims paid in any one month incurred by unlimited subscribers since February, 1948.

Altogether, Minnesotans received $97,269.47 in Blue Shield medical-surgical benefits during January. Of this amount 94.2 per cent or $91,628.34 was in payment of claims submitted by participating doctors for services to Blue Shield subscribers, and 5.8 per cent or $5,641.13 for claims submitted by non-participating doctors.

During the month of February, Minnesota Medical Service Inc., with the approval of the State Insurance epartment, paid the balance of notes held by doctors. Of the total $86,000 subscribed and loaned by doctors of Minnesota to assist the Blue Shield plan for working capital, only about $20,000 was actually used. The repayment of the total amount of notes to doctors was therefore not a great hardship upon the Association. However, the wonderful response of Minnesota doctors who were willing to underwrite the Plan was most encouraging. We thank you all again.

During January 9,192 Blue Shield applications were made effective, making the total Minnesota Blue Shield enrollment 282,887. Nearly 4,000,000 persons were added to the seventy-six Blue Shield plans in 1949, making a total Blue Shield enrollment of more than 14,250,000 as of December 31, 1949.

The demand for Blue Cross-Blue Shield coverage was clearly demonstrated in the first non-group Blue Cross-Blue Shield enrollment campaign ever to be conducted in Minnesota. The campaign, which began January 1 and closed January 21, brought 22,883 inquiries and 10,362 applications were returned. Over 1,000 persons inquired at the information desk about the new, non-group coverage; 6,164 persons inquired by telephone, and 15,654 persons inquired by mail. On February 10, the final date for acceptance of non-group contracts, over 45 per cent of the people who had inquired about the non-group coverage had sent in their applications. An additional 652 inquiries came from thirteen other states and Canada. These inquiries were referred to their respective Blue Shield and Blue Cross plans in their area.

Minnesota Blue Cross enrollment on January 31, 1950, totalled 989,474. Payments to hospitals during January amounted to $741,092.03—an increase of $82,390.51 over the amount paid during January, 1949.

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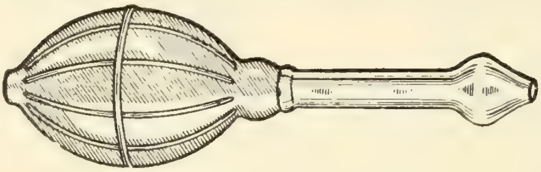

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Across the nation, about 900,000 steel workers and their families will be covered by Blue Cross as a part of the agreements which settled last fall's nationwide steel strike. Approximately 15,000 steelworkers in Minnesota will come under the hospitalization program provided by Blue Cross. A commercial contract was selected by the steel workers covering surgical services. It is hoped that a national contract can eventually be worked out to cover the steelworkers for Blue Shield benefits.

To supply the hospitalization program for steelworkers and their families, Blue Cross plans wrote a contract which, for the first time, offers similar rates and benefits for every employe regardless of where he lives. Ordinarily, employes of nationwide industries are enrolled in their local plans, pay local plan rates and receive local plan benefits. The steel contracts provide a uniformity of benefits and rates which will serve as a model for formulating future Blue Cross agreements in other nationwide industries where uniform coverage of employes may be desired.

Over 36,000,000 persons in the United States and Canada are Blue Cross subscribers.

The annual joint conference of Blue Cross and Blue Shield plans was held in Montreal, Quebec, from February 26 to March 1. Arthur M. Calvin, executive director of the Minnesota plans, was elected a commissioner of the Blue Shield medical care plans representing Minnesota, Wisconsin, Iowa, Nebraska, North Dakota and South Dakota. Dr. A. J. Offerman, president of the Nebraska Blue Shield plan, was also elected a commissioner from this district. Each district is entitled to one commissioner who is a doctor of medicine and one commissioner who is an executive director of a Blue Shield plan.

The conference meetings primarily concerned Blue Cross-Blue Shield policies. Some of the main actions taken involved the Inter-Plan Transfer Agreement. Among other changes, the most important effected the cancelling of contracts held by subscribers who move out of one plan's area into an area served by another participating plan.

Both Blue Cross and Blue Shield Commissions revised their standards for approval of Plans, establishing more definite requirements for Plans to meet financial responsibility as well as non-profit sponsorship and control.

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

HANDBOOK OF OBSTETRICS AND DIAGNOSTIC GYNECOLOGY. Leo Doyle, M.S., M.D. 240 pages. Illus. Price $2.00, flexible binding. Palo Alto, California: University Medical Publishers, 1950.

A CENTURY OF MEDICINE IN JACKSONVILLE AND DUVAL COUNTY. Webster Merritt. 201 pages. Illus. Price $3.50, cloth. Gainesville, Florida: University of Florida Press, 1949.

UROLOGICAL SURGERY. Second Edition. Austin Ingram Dodson, M.D., F.A.C.S., Professor of Urology, Medical College of Virginia; Urologist to the Hospital Division, Medical College of Virginia; Urologist to Crippled Children's Hospital; Urologist to St. Elizabeth's Hospital; Urologist to St. Luke's Hospital and McQuire Clinic. 855 pages. Illus. Price $13.50, cloth. St. Louis: C. V. Mosby Co., 1950.

MEDICINE OF THE YEAR. John B. Youmans, M.D., editor, Dean, School of Medicine, Vanderbilt University. 204 pages. Price $5.00, cloth binding. Philadelphia: J. B. Lippincott Company, 1950.

THE PHYSIOLOGY OF THOUGHT; A FUNCTIONAL STUDY OF THE HUMAN MIND IN ACTION. By Harold Bailey, M.D., F.A.C.S. 314 pages. Price $3.75. New York: The William-Frederick Press, 1949.

This 314-page book is written by Dr. Harold Bail-ey, ophthalmologist, living in Charles City, Iowa, a raduate of Rush Medical College in 1897.

The preface states, "We shall limit the text to a onsideration of our own ideas, and we shall devote ittle space to the discussion of views expressed by ther writers."

The contents of the book bears out this plan of he author. His ideas, theories, and philosophies, as et forth, show that the author did considerable rowsing among philosophic and psychologic books, f which he most frequently mentions William James' Principles of Psychology."

The language used in the book is semi-popular, but nough technical terms are sprinkled throughout to ake it difficult reading for a layman.

The book can hardly be recommended as being f any interest, much less of any scientific value, to a odern physician, psychiatrist, or psychologist.

EARING TESTS AND HEARING INSTRUMENTS. By Leland A. Watson and Thomas Tolan, M.D. 597 pages. Illus. Price $7.00. Baltimore: The Williams & Wilkins Company, 1949.

The authors state that the purpose of the book is to rovide a comprehensive and primarily practical text on earing instruments and their application, intended for hysicians, nurses, rehabilitation officers, school health fficers, hearing aid technicians and those who dispense nd fit hearing aids, and presented in a generalized style hich avoids a strictly medical or a strictly engineering pproach.

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Part IV. Social aspects of audiometry, including military, industrial, medico-legal and school phases.

Part V. Hearing Aids.

Part VI. Advanced audiometry, including speech hearing tests.

This division of material facilitates ready reference. The book reflects an exhaustive study of the literature on hearing aids and audiometers published since 1939 and a comprehensive knowledge of these subjects. Much material is presented on a wide variety of topics of especial interest to the otologist, such as that on sound proof and acoustically treated rooms for audiometry, the relation between pure tone audiograms and speech hearing tests, the role of the audiometer in military, industrial and medico-legal fields and the economic aspects of the hearing aid industry, such as the extent of the active and potential market, annual sales, cost of hearing aid up-keep and role of the retail dealer.

The bibliography, by author, publication and subject, is exhaustive and usable. There is also a glossary of terms used in audiology, sponsored by the Acoustical Society of America and by the Institute of Radio Engineers, Inc., which is most helpful and covers many subjects, especially engineering, with which the otologist has little or no acquaintance.

The book is profusely supplied with tables and illustrations, including many audiograms, and a general glossary and index. The material is well organized and presented and constitutes a valuable source for reference.

It is the reviewer's opinion that the authors have well accomplished their intended purpose; the book is unreservedly recommended.

CHARLES E. CONNOR, M.D.

BARBITURATE POISONING

(Continued from Page 370)

with the use of inadequate initial doses and neglect to repeat as often as needed."

The dosage of metrazol must be governed solely by the degree of the depression present.

In a review of the literature dealing with the use of massive doses of metrazol for the treatment of barbiturate poisoning, no case was found in which such a large amount of the drug had been administered, although Engstrand and Hruza[2] reported a case in which 80 c.c. of metrazol had been given in divided doses with complete recovery of the patient.

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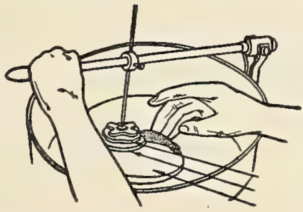

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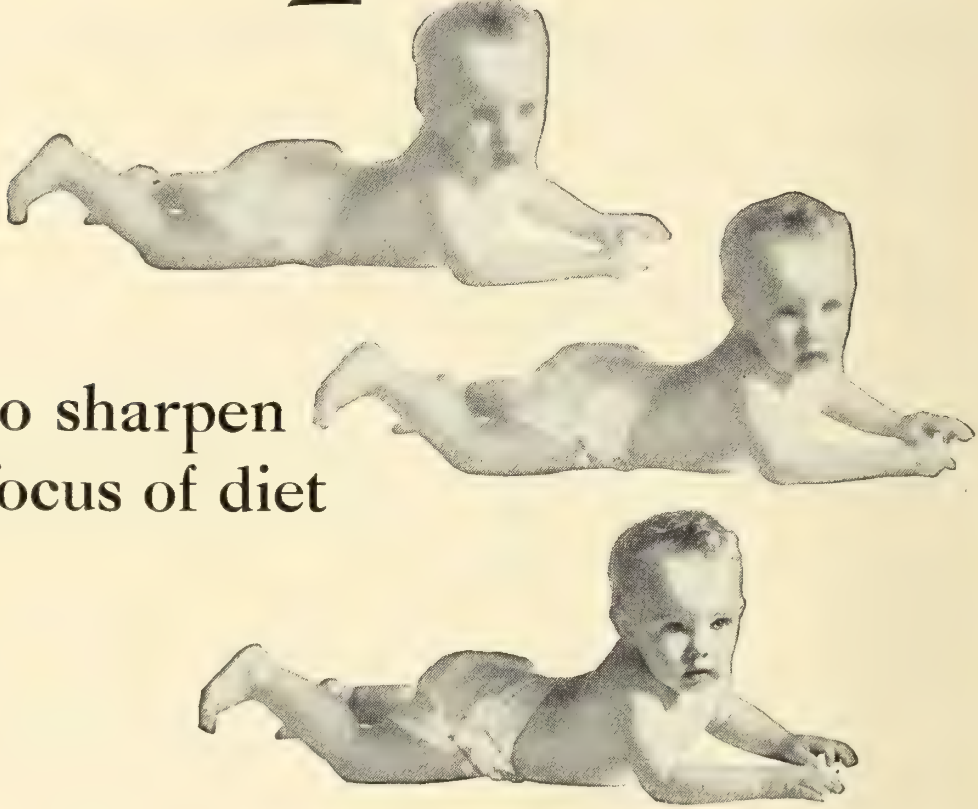

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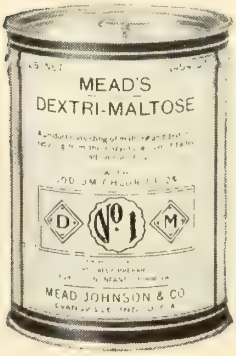

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Payne, E. H.; Knaudt, J. A., and Palacios, S.: J. Trop. Med. & Hyg. *51*:68, 1948

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

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Entered at the Post Office in Saint Paul as second class mail matter. Accepted for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized July 13, 1918.

MINNESOTA MEDICINE

Official Journal of the Minnesota State Medical Association

Published by the Association under the direction of its Editing and Publishing Committee

Office of Minnesota State Medical Association,
493 Lowry Medical Arts Bldg., Saint Paul 2, Minnesota.

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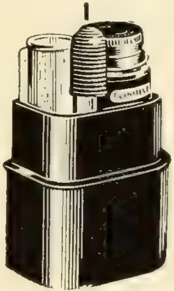

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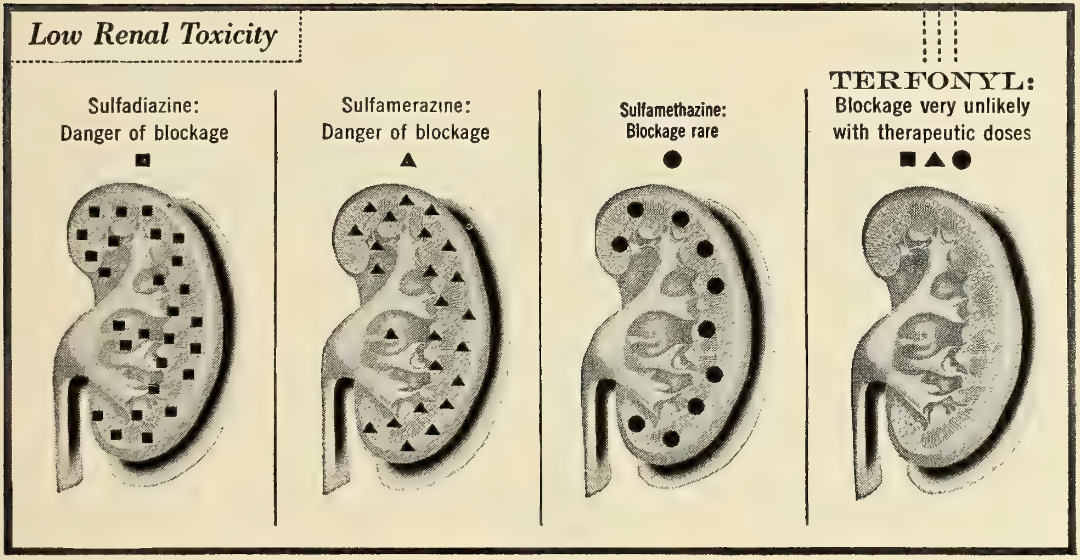
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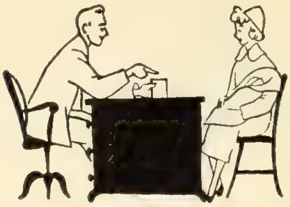

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J. Clin. Endocrinol. 3:95 (Feb.) 1943

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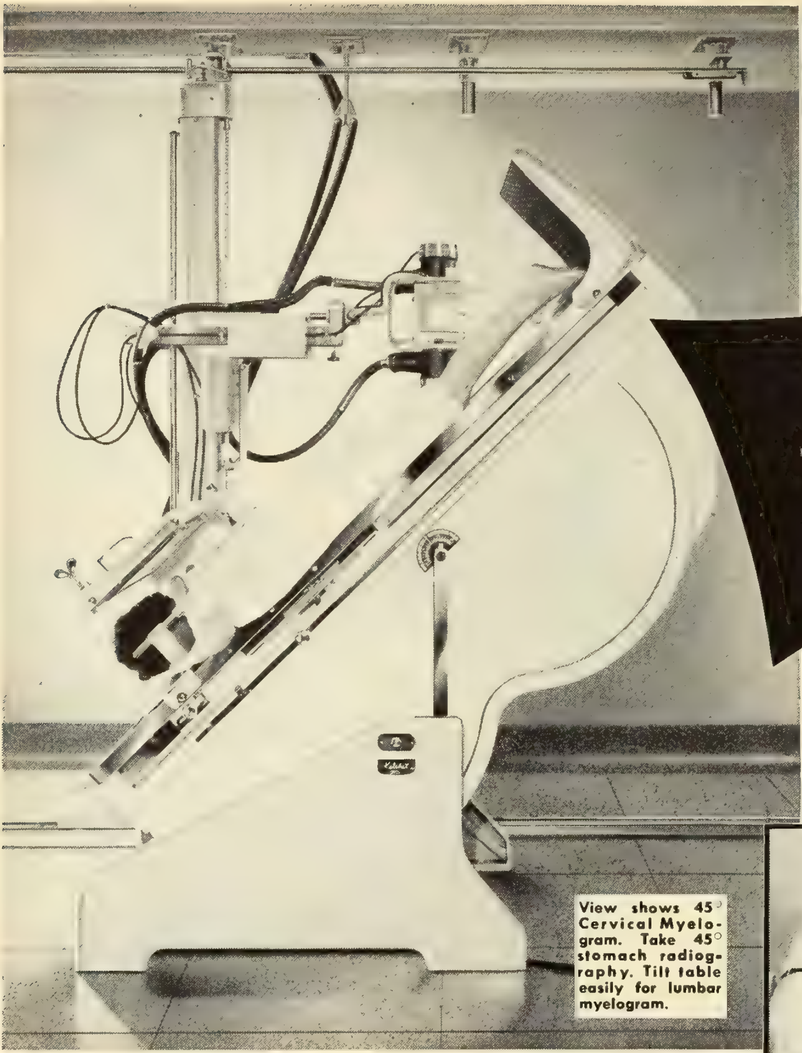

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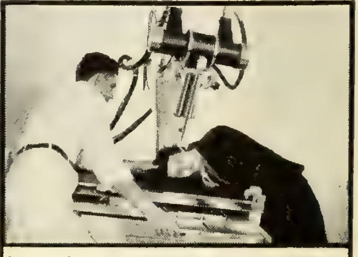

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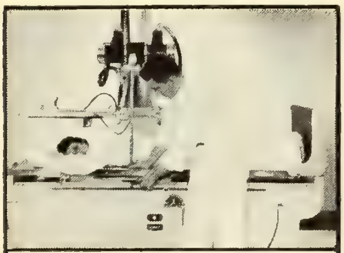

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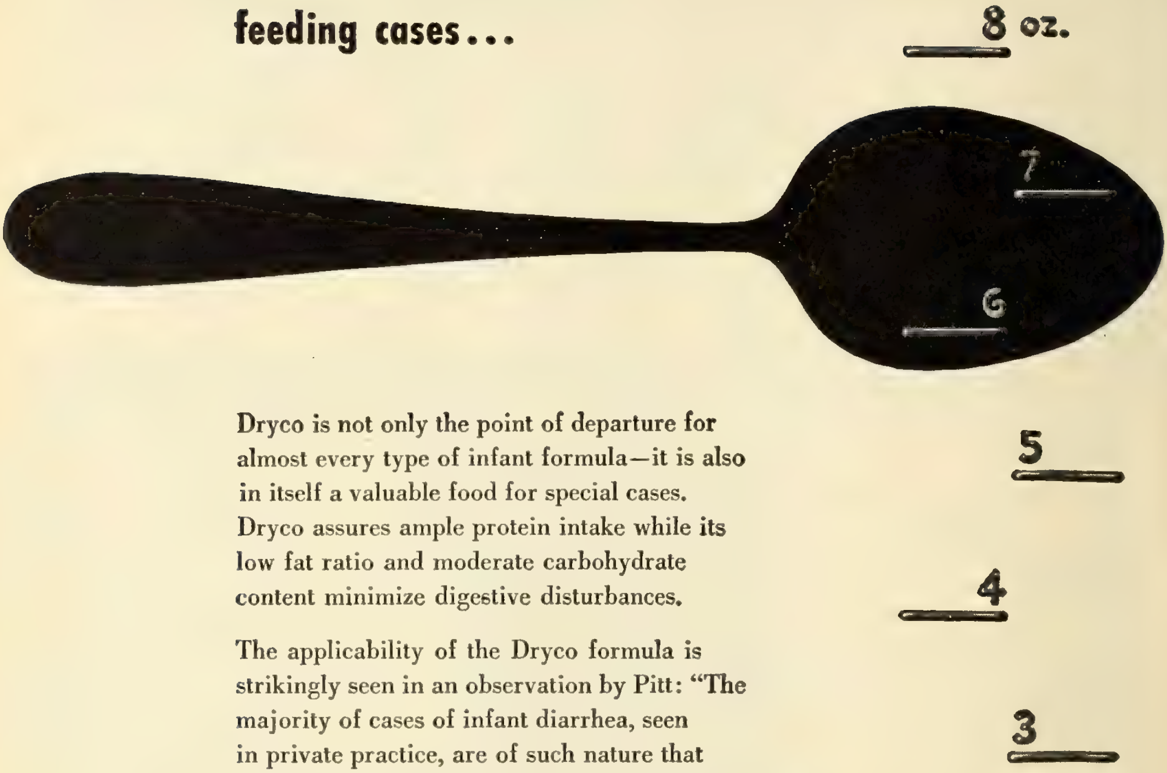

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**Pitt, C.K.: The Art and Science of Artificial Infant Feeding, J.M. Asso. Ala. 19:101 (Oct.) 1949.*

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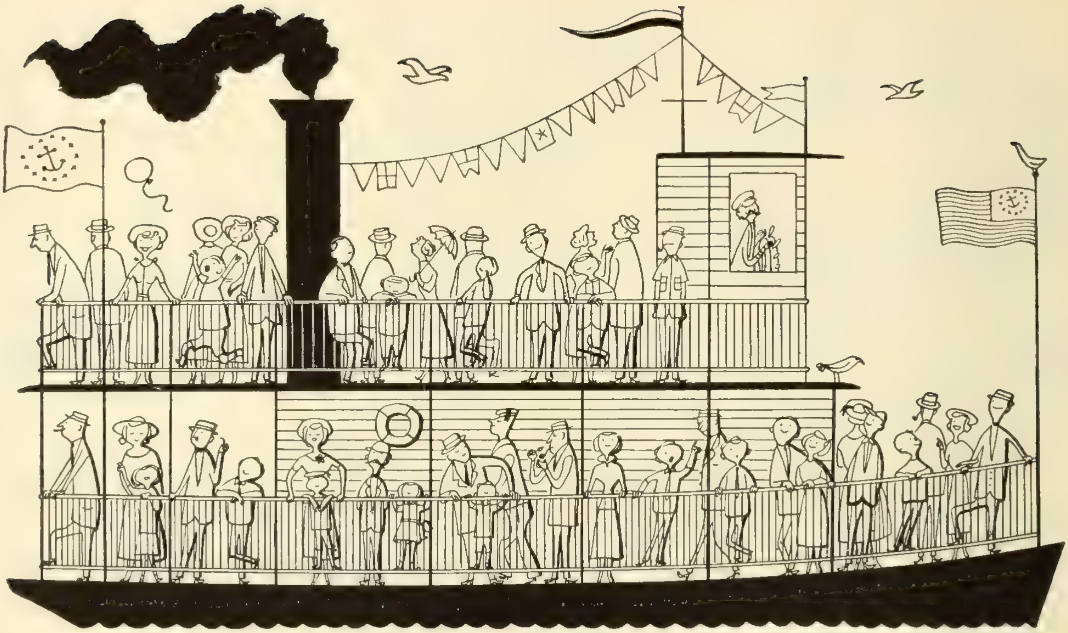

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*Orent-Keiles, E., and Hallman, L. F.: The Breakfast Meal in Relation to Blood-Sugar Values, Circular No. 827, United States Department of Agriculture, Bureau of Human Nutrition and Home Economics, Agricultural Research Administration, Dec., 1949.

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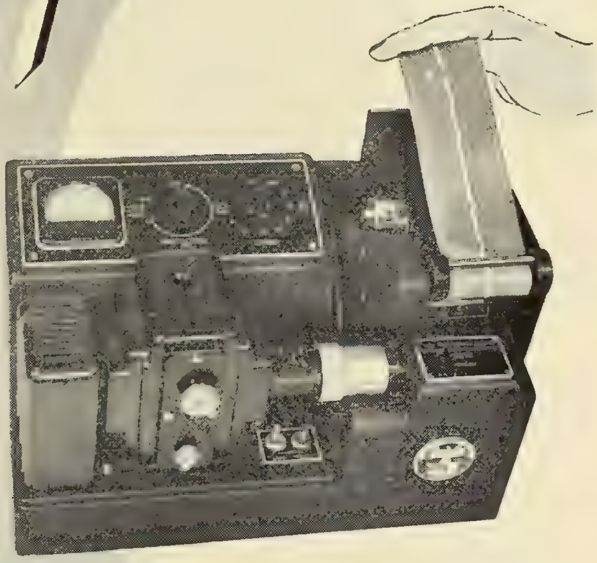

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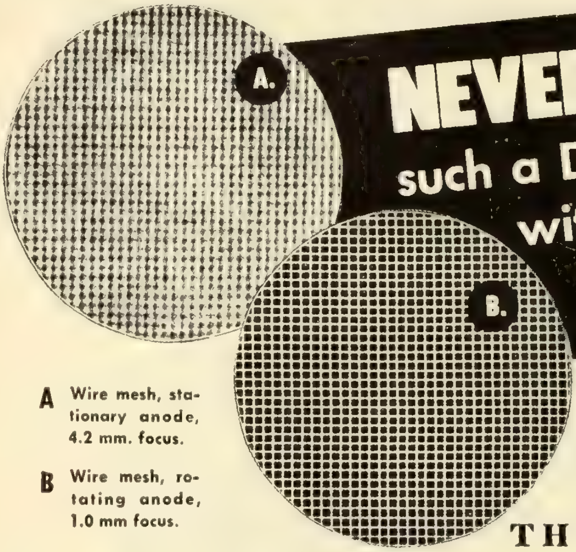

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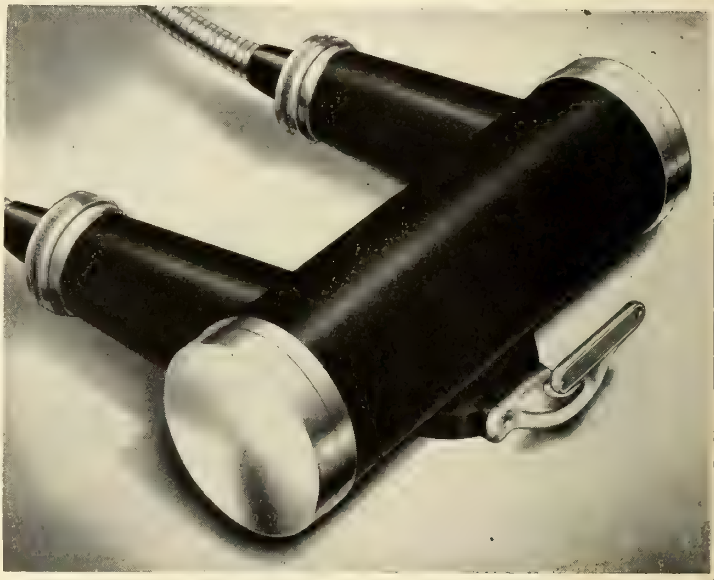

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 33 May, 1950 No. 5

SYPHILITIC CARDIAC DEATHS IN OVER FIFTY THOUSAND AUTOPSIES

B. J. CLAWSON, M.D.
Professor Emeritus of Pathology, University of Minnesota
Minneapolis, Minnesota

THE deaths due to cardiac syphilis in the records in the Department of Pathology in the University of Minnesota during the years 1910-1947 are analyzed in respect to general incidence, incidence of types, age and sex, and gross and microscopic changes noted in the hearts. Death as a result of syphilitic aortitis, valvulitis or much less frequently from syphilitic myocarditis or gumma of the myocardium in the above autopsies is, according to Bell,[1] the most common cause of death in acquired syphilis. All of the cases with one exception, a gumma of the myocardium, were associated with syphilitic aortitis.

General Incidence

In a series of 4880 autopsies, Symmers[5] found syphilis of the aorta in 175 (3.6 per cent). At the Boston City Hospital, Reid[3] found seven cases of syphilitic aortitis in 100 successive autopsies. Gürich,[2] in 22,179 autopsies, noted evidences of syphilis in the heart in 806 (3.5 per cent). In our 50,730 autopsies, not including stillbirths, in the Department of Pathology at the University of Minnesota (1910-1947), there were 422 cases of syphilitic cardiac deaths (0.83 per cent). These 422 cases were 4.4 per cent of the total number (9585) of noncongenital cardiac deaths during the same period (Table I).

The percentage of cardiac deaths in the autopsy material is close to the percentage of such deaths in the general population in the State of Minnesota. The autopsies are fairly representative and nonselected. They have been performed in general and private hospitals, on private patients of physicians and in the coroner's service. The percentage of autopsies has been high, namely, about 25 per cent of the deaths in Minneapolis and 10 per cent of the State of Minnesota. This material because of its volume, wide distribution and large autopsy percentage appears to be valuable for making an approach to a statistical study of the incidence of diseases of the heart as a cause of death.

TABLE I. TYPES OF SYPHILITIC HEART DISEASE
422 cases in 9,585 cardiac cases (4.40 per cent) and in 50,730 autopsies (0.83 per cent), 1910-1947

Types	No.	Per cent of Group	Per cent Cardiac Cases	Per cent Autopsies
1. Aortic insufficiency	247	58.53	2.57	0.48
2. Narrowing of the coronary orifices	80	18.95	0.83	0.15
3. Rupture of aortic aneurysm	89	21.09	0.93	0.17
4. Gumma of myocardium	6	1.42	0.06	0.01
Total	422	99.99	4.40	0.83

Incidence of Types of Cardiac Syphilis

Depending upon the manner in which death occurred primarily, the 422 cases of cardiac syphilis were divided into four types (Table I): aortic insufficiency, 247 cases (58.5 per cent); narrowing of the coronary orifices, eighty cases (18.9 per cent); rupture of an aortic aneurysm, eighty-nine cases (21.1 per cent); and gumma of the myocardium, six cases (1.4 per cent). Commonly, there was an overlapping of the types, especially of the first three. A question might be raised as to whether the cases in which

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From the Department of Pathology, University of Minnesota.

TABLE II. INCIDENCE OF DEATHS FROM CARDIAC SYPHILIS PER THOUSAND AUTOPSIES

Patients 40 years old or more per five-year periods, 1910-1947

Periods	No. Cases	No. Autopsies	Per Thousand Autopsies
1914-18	21	1205	17.42
1919-23	36	1758	20.47
1924-28	73	4112	17.75
1929-33	98	7101	13.80
1934-38	88	9062	9.71
1939-43	77	9906	7.77
1944-47*	18	7799	2.30

*In the last period there are only 4 years.

TABLE III. AGE AND SEX INCIDENCE IN DECADES IN TYPES OF SYPHILITIC HEART DISEASE

422 cases as compared with the number of autopsies (50,730) in respective decades, 1910-1947.

Decades	Autopsies	Aortic Insufficiency		Narrowing of Coronary Orifices		Rupture of Aortic Aneurysm		Gumma of Myocardium		Total	
		No.	M	No.	M	No.	M	No.	M	No.	M
Males 355											
1	4293	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
2	941	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
3	1819	2	1.09	1	0.54	0	0.00	1	0.54	4	2.19
4	2831	18	6.35*	13	4.59*	5	1.76	1	0.35	37	13.06*
5	4498	53	11.78*	26	5.78*	25	5.55*	0	0.00	104	23.12*
6	5934	88	14.82*	16	2.69	20	3.37	0	0.00	124	20.89*
7	6064	42	6.92*	5	0.82	22	3.62*	1	0.16	70	11.54*
8	4518	10	2.21	0	0.00	5	1.10	0	0.00	15	3.32
9	1521	1	0.65	0	0.00	0	0.00	0	0.00	1	0.65
10	94	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	32,513	214	6.58*	61	1.87*	77	2.36*	3	0.09	355	10.91*
Females 67											
1	3123	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
2	811	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
3	1609	3	1.86*	1	0.62	0	0.00	0	0.00	4	2.48
4	1877	4	2.13	4	2.13*	0	0.00	2	1.06	10	5.32*
5	2207	7	3.17*	7	3.17*	2	0.90*	1	0.45	17	7.70*
6	2597	10	3.85*	3	1.15	7	2.69	0	0.00	20	7.70*
7	2718	9	3.31*	3	1.10	3	1.10*	0	0.00	15	5.51
8	2330	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
9	867	0	0.00	1	1.15	0	0.00	0	0.00	1	1.15
10	77	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
11	1	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
	18,217	33	1.81*	19	1.04*	12	0.65*	3	0.16	67	3.67*

*A statistical significant difference.

death was due to a rupture of a syphilitic aneurysm should be included among the syphilitic cardiac deaths. These cases, however, commonly had some clinical evidences of cardiac failure and at autopsy exhibited an associated syphilitic valvulitis with cardiac hypertrophy and dilatation. They were, therefore, grouped as syphilitic cardiac diseases.

There has been a marked and significant drop in the incidence of cardiac syphilis in Minnesota in the last thirty-four years, as indicated by autopsy findings. This is illustrated in Table II in which seven five-year periods of autopsies are studied. These periods begin with 1914 and end with 1947. The last period has only four years. Only the ages of forty or over are included since syphilitic cardiac deaths so rarely occur in younger people. The seven periods, beginning with 1914, showed an incidence of 17.4, 20.4, 17.7, 13.8, 9.7, 7.7 and 2.3 cases of syphilitic heart deaths per thousand autopsies respectively. The cause of this highly significant reduction in cardiac syphilitic deaths can only be speculative. Education and therapy probably have been important factors.

Age and Sex Incidence (Table III)

The largest number of cases per thousand autopsies in decades among the males and females in the different types were as follows: aortic insufficiency, males, sixth decade (14.8), females, sixth decade (3.8); narrowing of coronary orifices, males fifth decade (5.7), females fifth decade (3.1); rupture of an aortic aneurysm, males fifth decade (5.5), females sixth decade (2.6); and gumma of the myocardium, males in the third decade and females in the fourth. Males predominated significantly in the first three types. There was a total significant preponderance of males (2.97 males to 1 female).

Pathology

Gross and microscopic changes, in varying degrees, are seen in the valves, myocardium and coronary orifices. The aortic was the only valve involved. The clinical signs referable to the heart with syphilitic aortic valvulitis were aortic regurgitation with cardiac hypertrophy and dilatation. Stenosis did not occur—a fact which is useful clinically in differentiating aortic valvular deformity due to rheumatic infection from the deformity due to syphilis. Two changes are noted in syphilitic aortitis and valvulitis: a cord-like free marginal thickening of the aortic cusps and separation of the valvular commissures or attachments of the cusps to the aorta. There is seldom a diffuse thickening of the cusps but they may have the appearance of being displaced. Microscopically in the marginal thickening of the valve there is an increase of connective tissue, and visible blood vessels are often greatly increased in size. A marked microscopic similarity exists between the structure of the free marginal thickening and the thickened valve resulting from rheumatic infection. The separation of the commissures of the cusps is due primarily to the intimal thickening of the aorta which separates the cusps and causes an aortic insufficiency. The above two changes account for nearly all of the aortic insufficiencies. However, in a few cases the insufficiency can only be explained by a stretching of the aortic ring. This probably occurs more frequently than can be observed at autopsy although it can sometimes be demonstrated by the pathologist.

TABLE IV. INCIDENCE OF KINDS OF VALVULAR INVOLVEMENT IN SYPHILITIC HEART DISEASE

Type	Marginal Thickening		Separation of Cusps		Both		One of Both	
1(223)	188	84.30%	175	78.47%	149	66.81%	204	91.03%
2 (70)	27	38.57%	39	55.71%	21	30.00%	45	64.28%
3 (60)	10	16.66%	13	21.66%	6	10.00%	17	28.33%

TABLE V. DEGREES OF CARDIAC HYPERTROPHY IN SYPHILITIC HEART DISEASE (400 CASES)

Weight of Hearts	Type 1		Type 2		Type 3		Total	
	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
Males below 350 or Females below 300	2	0.81	7	8.75	22	28.94	31	7.75
Males 350-399 or Females 300-349	3	1.22	21	26.25	21	27.63	45	11.25
Males 400-449 or Females 350-399	15	6.14	21	26.25	12	15.78	48	12.00
Males 450-499 or Females 400-449	18	7.33	18	22.50	10	13.15	46	11.50
Males 500 or more or Females 450 or more	206	84.42	13	16.25	11	14.47	230	57.50
Total	244	99.92	80	100.00	76	99.97	400	100.00

The frequency of the two anatomic valvular changes is noted in Table IV. The changes are most frequent in Type 1. Marginal thickening was observed in 84.3 per cent, separation of the commissures in 78.4 per cent, both conditions in 66.8 per cent and one or both in 91.0 per cent. There is an anatomic basis other than stretching of the ring for the myocardial failure in at least 91 per cent of the 188 cases of this type examined. In the seventy cases in Type 2 in which death was due to the narrowing of the coronary orifices and in the sixty cases in Type 3 with rupture of an aortic aneurysm, the valvular organic changes were less, one or both of the changes found in 64.2 per cent and 28.3 per cent respectively.

The chief gross change seen in the myocardium was the hypertrophy. The degree of cardiac hypertrophy of 400 hearts in the three types of cardiac syphilis is shown in Table V. With few exceptions male hearts weighing 400 grams or more and female hearts 350 grams or more may be considered as having a greater or less degree of hypertrophy. Two hundred and thirty-nine of the 244 hearts in Type 1 (97.9 per cent) were hypertrophied. Fifty-two of the eighty hearts in Type 2 (65 per cent) and thirty-three of the seventy-six cases (43.4 per cent) in Type 3 had varying degrees of hypertrophy. It is to be noted that the incidence of hypertrophy, in general, and the greatest degree of hypertrophy were much higher in Type 1 than in the other two types. Gross infarction was found in only an occasional case with a large heart and narrowing of the coronary orifices.

TABLE VI. DEGREES OF INVOLVEMENT OF CORONARY ORIFICES AND CORONARY ARTERIES IN SYPHILITIC HEART DISEASE

Degrees	Type 1				Type 2				Type 3			
	Orifices (223)		Arteries (153)		Orifices (74)		Arteries (70)		Orifices (58)		Arteries (78)	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
L++ R++ to L++++ R++++	59	26.45	10	6.53	68	91.89	1	1.42	11	18.96	11	14.10
Lo Ro to L++ R+ or L+ R++	164	73.54	143	93.46	6	8.10	69	98.57	47	81.03	67	85.89
Total	223	99.99	153	99.99	74	99.99	70	99.99	58	99.99	78	99.99

Except in the few cases with gumma of the myocardium, microscopic myocardial changes were seldom observed by an examination of several blocks from each of 106 hearts (Type 1, forty-six cases; Type 2, twenty-five cases and Type 3, thirty-five cases respectively). The changes which were observed were the type commonly associated with and resulting from atherosclerotic coronary arterial disease. Five blocks from each of the 106 hearts were stained by the Levaditi method. A careful search failed to reveal any spirochetes in any of the many sections examined. These findings agree with the observations of Saphir.[4]

The degrees of change noted in the coronary orifices and coronary arteries are seen in Table VI. These degrees are listed as +, ++, +++ and ++++. The changes observed in the orifices were narrowing due to the thickened intima of the aorta. The changes noted in the coronary arteries were not syphilitic in character but arteriosclerotic. L refers to the left orifice or artery and R to the right. Lo and Ro and L++ R+ or L+ R++ we considered to be close to the normal limit, especially to the arteriosclerotic findings in the coronary arteries for the ages of the groups reported. It is seen that the narrowing of the coronary orifices is greatest in Type 2 (91.8 per cent) in which death was not due primarily to congestive cardiac failure but to coronary insufficiency. Atherosclerosis of the coronary arteries in all of the types appears not to be greater than is found in nonsyphilitic cases.

Summary and Conclusions

The incidence of deaths from syphilitic aortitis with the associated narrowing of coronary orifices, syphilitic valvulitis, aortic insufficiency and congestive cardiac failure furnishes a fairly good estimation of the frequency of deaths from tertiary syphilis since cardiac syphilis has been found to be the most common manifestation of tertiary syphilis which results in death.

The general incidence of syphilitic cardiac deaths (0.83 per cent) in our autopsy material now ranks less than the deaths from the calcific aortic valvular deformity (1.35 per cent).

There has been a marked reduction in the frequency of syphilitic cardiac diseases during the past thirty-four years. The number of cases per thousand autopsies in people forty years or older has dropped from a high of 20.4 to 2.3.

Males predominated in the ratio of nearly 3 to 1. The greatest number per thousand autopsies of both sexes died in the fifth and sixth decades. No deaths occurred in the first and second decades.

The valvular lesions and lesions of coronary orifices far outnumbered in importance other involvements as myocarditis and gumma. In fact, a gumma of the myocardium is so rare that it may be considered doubtful if a clinical diagnosis of gumma of the myocardium should ever be made.

The most common manner of death with syphilitic heart disease is that which follows aortic insufficiency (58.5 per cent). Deaths due to narrowing of coronary orifices and rupture of a syphilitic aneurysm are about equal, 18.9 per cent and 21 per cent, respectively.

An anatomic basis (free marginal thickening or separation of the commissures of the cusps) for the aortic insufficiency appears to be present in more than 90 per cent of the cases in which insufficiency is present. Evidently a stretching of the aortic ring, alone, is responsible for the myocardial failure in but a few cases.

Except in a relatively few cases of gumma of the myocardium few changes other than hypertrophy are seen in the myocardium. The hearts

(Continued on Page 479)

REVIEW OF 250 NECROPSY CASES OF HYPERTENSIVE CARDIOVASCULAR DISEASE

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THE general subject of hypertension is no small medical problem, and the effectiveness of its treatment is one of the more unsatisfactory chapters in the annals of medical therapeutics. The purpose of this paper is to briefly review some of the more important points in its basic pathological physiology, the most recent theories as to the etiology of so-called "essential" hypertension, trends in the newer methods of therapy, and an analysis of 250 necropsy cases at St. Luke's Hospital, Duluth, over a five-year period from July, 1943, to July, 1948.

TABLE I. SEX DISTRIBUTION

	No.	Per cent
Male	150	60.0
Female	100	40.0
Male predominated by a ratio of 3 to 2		

Hypertensive cardiovascular disease is more deadly than malignant neoplastic disease, the former taking upwards of 500,000 lives annually. The total deaths in the United States in 1943 were 1,459,544 with 645,109 or 44 per cent of these being due to cerebral hemorrhage, cerebral thrombosis, hemiplegia, chronic nephritis, and heart disease (exclusive of rheumatic heart disease). It has been estimated that at least 583,816 or 40 per cent of these patients had an associated hypertension. Some 90 to 95 per cent of hypertensives fall into the "essential" group so that about 554,625 (37.9 per cent) or slightly more than one-third of patients were dead from the effects of "essential" hypertension. Deaths from malignant neoplasm in 1943 were 169,000, so that hypertension accounted for almost three and one-half times the number of deaths due to malignancy in that year.[11] Hypertension accounts for about three-quarters of the deaths due to cardiovascular renal disease. About one-fourth of deaths over fifty years of age are due to hypertension in its various clinical manifestations. Statistically then we are dealing with a more deadly killer than most persons would suppose.

TABLE II. AGE DISTRIBUTION

Decade Group	M	F	No.	Per cent
0-10 yrs.	0	0	0	0
11-20 yrs.	0	0	0	0
21-30 yrs.	0	0	0	0
31-40 yrs.	4	0	4	1.6
41-50 yrs.	12	4	16	6.4
51-60 yrs.	27	26	53	21.2
61-70 yrs.	54	33	87	43.8
71-80 yrs.	35	24	59	23.6
81-90 yrs.	23	8	31	12.4
91-99 yrs.	0	0	0	0

From July, 1943, to July, 1948, there were 1,474 deaths at St. Luke's hospital, of which 374 were attributed to hypertensive cardiovascular disease. Excluding stillborn deaths, 24.7 per cent or slightly less than one quarter of deaths during this period were accounted for by this one disease complex alone. During this same period 309 (20.9 per cent) deaths were due to malignant neoplasms. It is apparent then that the percentage of hypertensive deaths follows, but not too closely, the trend as computed by the U. S. Bureau of Vital Statistics." The relation of cancer deaths as compared with the estimated overall national average likewise does not follow too closely, the ratio at St. Luke's being more nearly equal rather than hypertension being two to three times more predominant. The mortality rate four years after diagnosis of hypertension is 30 and 42 per cent in grades I and II, and 78 and 98 per cent in grades III and IV, the grading being on the basis of retinal and physical findings.[2] A particular cause for concern is the apparently earlier age at which "essential" hypertension is appearing and becoming fatal. Repeated clinical observations have shown that hypertensive members of a given family succumb earlier with each succeeding generation. It is not unusual to find the following typical family history: "Grandfather died at age seventy-two from a stroke; the mother died at age sixty from Bright's disease; and the son, aged thirty-five, is now suffering from a severe grade of hypertension."[4] In the St. Luke's series data on 172 of the cases showed that forty-nine (28.4 per cent) had a definite family history of the disease. This is in contrast to the figures of other authors in the literature that give 50 to 60 per cent positive family history in the majority of the case series, which implies a definite hereditary trend in the perpetuation of the disease. Any physician who takes refuge in the fact that an occasional patient survives hypertension for many years and feels that the disease is not serious is indulging himself in wishful thinking. That long-time survival is not common is borne out by the following rates of survival from the time of diagnosis to death. Data were available in ninety-six cases.

RATE OF SURVIVAL

	No.	Per cent	
1-5 years	41	42.7	79.1%
6-10 years	35	36.4	
11-15 years	16	16.7	
16-25 years	4	4.7	

Most patients died during the first five years after diagnosis, with a progressive drop in the death rate so that there was one patient surviving eighteen, twenty, twenty-four, and twenty-five years after diagnosis. At the other extreme of the scale we find that eight of the patients died within one year after diagnosis. During the first ten years after diagnosis 79.1 per cent of patients were dead.

TABLE III. PREVIOUS EPISODES

	No.	Per cent
None previous	129	55.3
Cardiac decomp.	52	22.3
Coronary accident	15	6.4
Cerebral accident	34	14.5
Uremia	3	1.2
Patients with multiple entities	13	5.1

The cardiovascular system is most frequently involved and usually sustains the greatest amount of damage, the greatest number of hypertensives making their exodus from failure of the cardiovascular system to maintain physiological states compatible with life. Elevation of the arterial pressure may be due to one or a combination of the following factors: (1) increased blood volume; (2) increased viscosity of the blood in the peripheral vessels, (3) increased cardiac output, (4) increased peripheral resistance due to a generalized arteriolar constriction. The first three have not been shown to play a significant role in "essential" hypertension, but the increased peripheral resistance has been implicated as the important factor producing the changes in the heart and peripheral vascular tree.[4] The basic and primary cause for the increased arteriolar tone is as yet unknown. Arterioles from hypertensives have shown more severe grades of medial hypertrophy with and without collagenous degeneration and intimal hyperplasia than normotensives of the same age groups. These lesions are found more frequently in sites such as kidneys, liver and the gastrointestinal tract which are rarely affected in normotensives.[12] These changes impose increased resistance in the peripheral system by virtue of decreased total cross section in the vascular bed. Whether these changes are due primarily to an aging process or a tissue response to long-continued effects of increased intravascular pressure is still unknown. Larger arteries, too, seem to be affected more frequently in hypertensives, some degree of arteriosclerosis being found in 115 (46.0 per cent) of this series. The changes in the hypertensive heart are reflections of the state of the arterial tree; the hypertrophy that eventually results is ascribed to sustained work against increased peripheral resistance and cardiac decompensation may eventually result. In the series of St. Luke's practically all of the cases were reported as having some degree of cardiac hypertrophy. This hypertrophy is relative, however, depending on the general build and estimated weight of the patient, a large heart in a small individual being of more significance than if found in a large obese or muscular individual. The majority of the heart weights fell between 400 and 600 grams, relatively few being on either side of this range. One weight was reported as 900 grams, the largest found in the series. There were all grades of dilatation and hypertrophy of the ventricular walls, the left being most consistently affected. The right ventricle showed far less incidence of hypertrophy, although dilatation was seen commonly secondary to decompensation. Experimental evidence has shown that in hypertension right intraventricular pressure is normal, indicative of normal arteriolar tone in the pulmonary bed. Right ventricular filling is not disturbed, and venous hemodynamics are not altered, venous pressure having been found to be normal

TABLE IV. SUBJECTIVE SYMPTOMS

	St. Luke's		Perera
	No.	Per cent	Per cent
Dyspnea	164	77.3	—
Cardiac pain	97	45.5	18.0
Frequency and nocturia	68	31.1	35.0
Palpitation	65	30.2	—
Headache	62	28.7	78.0
Dizziness	55	25.4	—
Visual disturbance	31	14.4	19.0
Tinnitus	16	7.4	—

TABLE V. RANGE OF DIASTOLIC BLOOD PRESSURES

Data on 227 cases	No.	Per cent
Under 100 mm. Hg.	102	44.9
Over 100 mm. Hg.	68	29.9
Over 120 mm. Hg.	57	25.2
Total Over 100 mm. Hg.	125	55.1

TABLE VI. CARDIAC INVOLVEMENT

Clinical Data	No.	Per cent	(Perera) Per cent
Aortic valve dis.	16	6.4	—
Mitral valve dis.	12	4.8	—
Myocardial infarct	53	21.2	90
Cardiac decomp.	101	40.4	40.0

unless congestive failure ensues.[4] Coronary sclerosis and attendant myocardial scarring is also implied in the causation of hypertrophy. The hypertension is felt to be an accelerating factor in the sclerosing process and to explain the increase of sclerosis in hypertensives. In our series there was a total of forty-five (18.0 per cent) with no coronary sclerosis, the remainder of the patients showing some degree of this process. The distribution of this involvement and severity is shown in the following table:

DISTRIBUTION AND SEVERITY OF CARDIAC INVOLVEMENT

	No.	Per cent
None	45	18.0
Grade I	42	16.2
Grade II	74	29.6
Grade III	39	15.6
Grade IV	50	20.0

Eighty-two per cent of patients showed some degree of coronary sclerosis, the majority being of lesser grades of severity. The large number of patients so affected may probably be accounted for by the fact that many of them are in the older age groups and therefore the ones who are more likely to display degenerative changes. ECG data on eighty patients showed 66 per cent to have myocardial disease. Left axis deviation was diagnosed in thirty and left ventricular strain in nineteen cases, a total of forty-nine with left ventricular preponderance. Chest x-rays in seventy-nine patients showed sixty (75.9 per cent) to have increased size of the cardiac shadow and compares with the 71 per cent in Perera's series of 250 cases.

TABLE VII. RENAL INVOLVEMENT

	No.	Per cent
Glomerulo hyalin	45	18.0
Glomerulonephritis	7	2.8
Pyelonephritis	23	9.2
Prostatic hypertrophy	89	59.3
Adrenal hyperplasia	2	0.8
Clinical uremia	32	14.7
BUN under 100 mg. %	5	2.2
BUN over 100 mg. %	15	6.9
Uremia (where deemed to be main contribution to death)	18	7.2
Goldblatt kidney	4	1.8

TABLE VIII. RANGE OF BUN LEVELS

Data on 117 (46.8%) patients

	No.	Per cent
10 mg. % and under	5	4.2
10–20 mg. %	45	38.4
20–50 mg. %	28	23.9
50–100 mg. %	23	19.5
100 mg. % and over	15	12.8
200 mg. % and over	1	0.9
Total patients with BUN elevation	67	57.1

Kidney involvement severe enough to account for death from renal failure has been found to be consistently the least common fate of hypertensives, most authors not reporting an incidence of more than 5 per cent. Patients developing renal insufficiency may, according to Bell, fall into one of three classes: (1) chronic hypertension with moderate renal insufficiency in which the patient usually dies from some extra renal cause; (2) chronic hypertension with slowly developing uremia, the small arteries showing marked intimal thickening, and arteriolar and glomerular hyalinization in varying degrees (grossly the kidneys are small and contracted); (3) chronic hypertension with acute uremia, which has been termed malignant because of its relatively rapid fulminating course and the consistent finding of marked collagenous thickening of the terminal arterioles and in a lesser number of cases a necrotizing type of lesion. Of our series only three were designated as malignant hypertension, the other cases of renal insufficiency being of a more chronic nature. The following table shows the incidence of renal arteriole involvement:

INCIDENCE OF RENAL ARTERIOLE INVOLVEMENT

	No.	Per cent
None	85	34.0
Grade I	49	19.0
Grade II	80	32.0
Grade III	26	10.4
Grade IV	10	4.0

Grades III and IV account for 14.4 per cent of involvement but do not show a consistent positive correlation with the thirty-two (32.7 per cent) patients who showed definite clinical signs of uremia. A total of 66 per cent showed some signs of nephrosclerosis with and without concomitant elevated blood metabolites. The data in this series is made somewhat invalid because of the discrepancy in the number of kidneys examined (all of them in the series) and the number of patients in whom blood-urea-nitrogen levels had been performed (117 out of 250 or 46.8 per cent). Arteriolar involvement seems to be a fairly consistent finding in autopsied cases but there seems to be no direct relation between the amount of involvement and the severity of the clinical symptoms of the hypertension. Some patients with

TABLE IX. NERVOUS SYSTEM INVOLVEMENT

	No.	Per cent
Cerebral hemorrhage	40	16.0
Cerebral thrombosis	28	11.2
Encephalomalacia (105 patients examined)	69	65.7

minimal renal involvement showed severe clinical symptoms, the converse also being found. In a study of 100 renal biopsies from surgical patients 53 per cent were found not to have sufficient organic renal disease to be the sole cause of the hypertension. After death from chronic hypertension, organic vascular lesions of the kidneys are found in practically all cases. If these biopsies can be assumed to be accurately representative of the renal vascular bed, it seems that the degenerative lesions seen after death are secondary to the hypertension and not a cause of it.[3]

TABLE X. INCIDENCE OF VARIOUS MODES OF EXODUS

	No.	Per cent	(Perera) Per cent
Myocardial infarction	53	21.2	10–20
Cardiac decompensation	101	40.4	40–50
Ruptured aneurysm and/or tamponade	10	4.0	
Uremia the cause of death	18	7.2	5
Cerebral hemorrhage	40	16.0	10–20
Cerebral thrombosis	28	11.2	10–20
	250	100.0	

After chronic renal disease, adrenal tumors, certain rare basophilic adenomas of the pituitary, and coarctation of the aorta, which account for 5 to 10 per cent of hypertensives, have all been excluded, the remaining 90 to 95 per cent fall into the essential group, which is the one at which the bulk of research is aimed in a quest for an etiology. The classical experimental work of Goldblatt in producing renal ischemia with resultant elaboration into the blood stream of vasopressor substances of renal origin the attempts to establish hyperplasia of the adrenal glands, the gross and sustained overactivity of the sympathetic nervous system, the various psychosomatic disorders with chronic emotional storms and tensions have all failed to explain the basic and inciting causes and mechanisms, and to provide the basis for development of a specific form of therapy. The most recent of the theories to explain the increased arterial pressure has been by Shorr and his associates.[15] They describe certain vasomotor excitor substances (VEM) derived from renal and hepatic tissues, and certain vasodepressor substances (VDM) which are thought to be derived from spleen, skeletal muscles, and liver. The VEM is produced as a result of altered kidney metabolism secondary to decreased renal oxygen tension, and is found in the peripheral blood stream during the time that the blood pressure is rising. The VEM is eventually neutralized by the antagonistic action of VDM by its appearance in the blood stream, with the eventual establishment of a neutral equilibrium between the two circulating factors at a higher level than prior to its elaboration. The cause for the persistance of the hypertension after this equilibrium has been established is still undetermined. These studies are still on an experimental basis and have no clinical application yet but may form a basis for the development of a specific anti-pressor substance. Excluding those very few cases where unilateral nephrectomy, removal of a pheochromocytoma or other adrenal tumor and in rare cases of surgery for coarctation of the aorta which may be of specific benefit, the treatment of hypertension in both medical and surgical phases is still basically symptomatic and palliative in type. There is no need to review the various criteria by which a patient is evaluated as a satisfactory candidate for surgery aimed at the ablation of certain components of the autonomic nervous system in efforts to break the chain of events leading to a sustained arterial pressure.[9,16] The role of barbiturates as sedators, the nitrites as temporary vasodilators, the thiocyanates as a controlled long range of vasodepressor type of medication are all well known. A drug formerly in disrepute to receive recent clinical reappraisal and being used by some recently is veratrum viride.[5] It has been found to be of value in cases of hypertensive encephalopathy and myocardial failure in acute hypertensive crises. Parenterally and orally it acts in one to two hours with a peak of action at four hours, but is disadvantageous because of the narrow margin between the toxic and therapeutic doses. Among the more promising of the

TABLE XI. ASSOCIATED NEOPLASMS FOUND IN PATIENTS OF THE SERIES

	No.
Breast	5
Stomach	5
Prostate	3
Lymphoblastoma	1
Colon	2
Kidney	2
Hypernephroma	1
Meningioma	1
Squamous cell	1
Thyroid	1
Bladder	1
Gall bladder	1
Lung	1
	25 (10.0%)

new agents are those which have as their common property a blockage of the sympathetically innervated vaso constrictors, in effect a chemically induced sympathectomy.[5] Dibenamine, a nitrogen mustard derivative with marked hypotensive properties but impractical for ambulatory therapy, and pentaquin, a derivative of plasmochin, have received experimental trial with equivocal results. The most promising of these agents has been dihydro-ergocornine (DHO 108). Responses with a drop in blood pressure have been noted with all routes of administration with sustained effects noted to be lasting from eight hours to several days. Toxic and undesirable side effects have been minimal. This drug is available for investigative purposes only, clinical experience being limited at the present time to evaluation of its potentialities.

Our present methods of therapy, directed as they are at the relief of symptoms and palliation are of value in rehabilitating some patients and allowing them to lead useful lives but at a lower level of activity. Successful lowering of the blood pressure must not be construed to be a sign of regression of a disease process which has a sustained hypertension as a secondary effect. The ultimate goal of research will be to supply the physician with a substance which will be as specific for essential hypertension as the present antibiotics are for the treatment of bacterial infections.

Summary

1. Statistics obtained from the St. Luke's patient series and national figures correlate only insofar as showing the incidence and predominance of hypentensive cardiovascular disease over malignant neoplasm as a cause of death.

2. Pathological physiology and possible mechanisms of production of essential hypertension have been discussed.

3. Two hundred fifty necropsy cases at St. Luke's Hospital over a five-year period have been reviewed relative to age groups, incidence of cardiovascular, renal and central nervous system involvement, clinical manifestations, laboratory data, and mode of exodus.

4. Several new drugs promising in the treatment of hypertension have been mentioned.

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THREAT TO FREEDOM

There impends today a stupendous threat . . . in the fact that our country, without opportunity for conscious choice on the part of its people, is rapidly drifting toward the consummation of a false concept—contemptible to free men—the socialized state. . . .

Tokens of this danger are everywhere and undeniable. The growing power and expansion of a wasteful Government . . . colossal public debt . . . heavy burden of taxation . . . ridiculous attempt—by dictating wages, hours of labor, prices, . . . and by innumerable other false expedients—to substitute an artificial economy for the natural economy which alone can function in freedom . . . gradual assumption by the state of financial, responsibility for every hazard incident to life, labor, infirmity, and old age . . . alignment of economic and social groups one against the other. . . .

The present semblance of "prosperity" is only the byproduct of the most terrible and destructive war that ever afflicted the world, and is now maintained only by artifice implemented by folly, fear, and dire forebodings.

. . . we call on all patriotic Americans to denounce them (these policies and politicians who support them) and to work energetically and courageously for the reestablishment and maintenance of free and competitive enterprise and the restoration of the Republic.—*New York Daily News,* March 27, 1950.

THE PLANS OF MEDICAL STUDENTS FOR PRACTICE

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THERE is widespread interest about the plans of present-day medical students for future practice. This is to be attributed in part to the apprehension which has existed for a half-century or longer[6] that specialism will eventually eliminate the general practitioner, a contingency which was thought by some to be fairly imminent when the postgraduate wishes of medical officers were summarized early in 1945 by Harold C. Lueth.[7] His report and data published subsequently[5] lent credence to the prediction of Weiskotten[14,15] in 1932 and earlier, that 70 per cent of the medical graduates each year will eventually limit their practice to a specialty. The tendency to limitation of medical practice within restricted fields exaggerates the need for adequately trained and experienced general physicians, according to Walter L. Bierring,[1] who feels that this constitutes one of the most important problems facing the medical profession and the medical schools, as well as all those agencies concerned with public health.

There have been various reassurances that the general practitioner is not "doomed,"[2,3,4,8] and his future appears considerably brighter each day because his importance is being constantly re-emphasized, his relationship to hospitals is improving and more opportunities are being afforded him for self-improvement. His own Section on the General Practice of Medicine in the American Medical Association and his American Academy of General Practice will help him to put his own house in order and to set standards which will be sufficiently high to cause him to obtain proper satisfaction from his own particular role in medical practice.

Possibly the brightest aspect of general practice is the attitude exhibited by recent graduates in medicine. In the Educational Numbers of *The Journal of the American Medical Association* in 1948 and 1949,[9] polls concerning the plans of medical students were reported. These polls suggested that an idea which has achieved rather wide acceptance should be corrected: this is that few present-day medical students are planning to enter general practice.

QUESTIONNAIRE

1. Do you intend to be a practicing physician? Yes.... No....
2. If you find yourself able financially, how many years of hospital training, after internship, will you undertake? One.... Two.... Three.... More than three.....
3. Do you plan eventually to be certified by a specialty board? Yes.... No.....
4. Would you prefer to engage in solo practice...., small clinic practice...., large clinic practice...., industrial medicine...., Government service...., other........?
5. What annual net income have you set for your goal? $.........
6. According to your present inclinations, would you wish to practice in Minnesota...., the Middle West or Northwest...., a distant state...., or in a foreign country....?
7. Is your family resident in Minnesota? Yes.... No.....
8. Provided adequate hospital facilities were available and the prospects for adequate remuneration and reasonable working hours were good, check the size of the community in which you would prefer to practice medicine: 1,000 or less...., 1,000 to 5,000 ...., 5,000 to 50,000...., over 50,000.....
9. What was the population of the community in which you were reared? ....
10. What form of remuneration would you prefer to receive: Salary for full-time...., fees from private practice...., combined part-time salary, or other steady income, plus part-time private practice......?
11. Would you be averse to participation of government in the financial and administrative aspects of medical practice? Yes.... No.....

At the University of Minnesota Medical School, systematic questioning of senior medical students was undertaken in June, 1944. A relatively simple questionnaire was adopted, as shown. Some of the data collected were mainly of local interest. This was especially true of the inquiry as to how many recent graduates plan to remain in their home state, what types of practices they contemplate, the geographic location and size of communities which they desire for practice, and the incomes they hope to achieve. After surveying two classes of senior students it was decided to determine how the thinking of the fourth-year students compared with that of first-year students.

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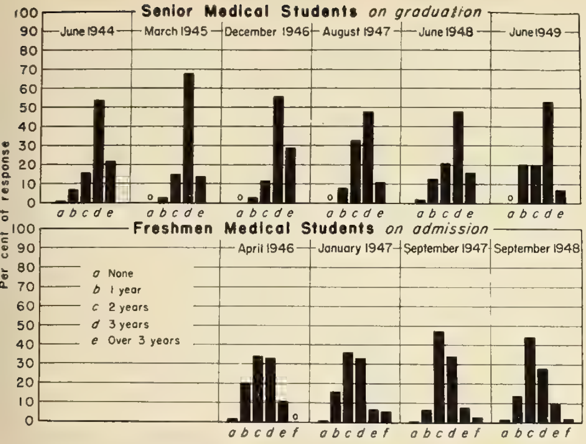

Fig. 1. Hospital training desired beyond internship.

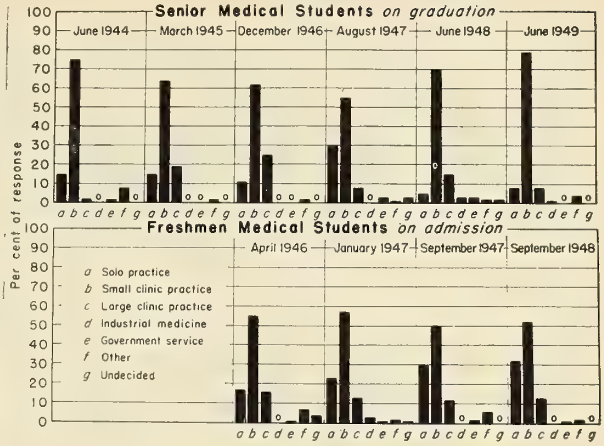

Fig. 3. Type of practice preferred.

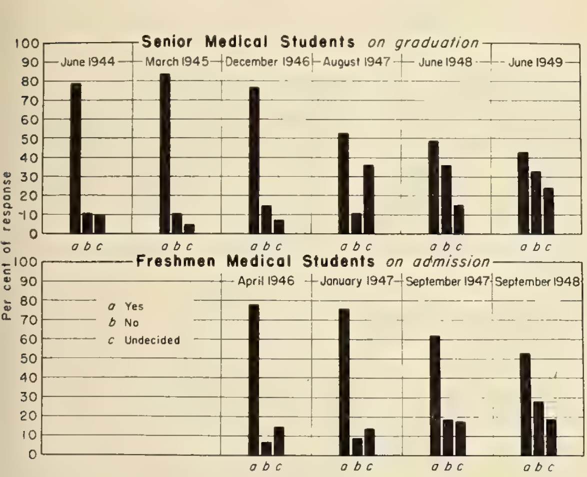

Fig. 2. Intentions to seek specialty board certification.

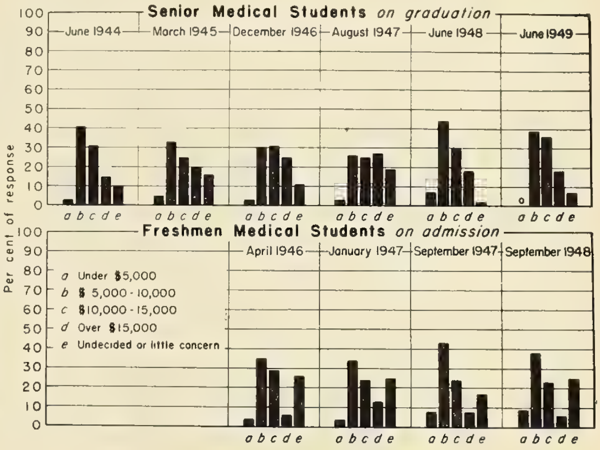

Fig. 4. Income goals.

Intention to be Practicing Physicians.—In the classes of seniors between 1944 and 1949, 99, 99, 98, 97, 97, and 98 per cent of the students, respectively, 98, stated they intended to engage in medical practice. Among the first-year students from 1946 to 1948, 93, 93, 96 and 100 per cent, respectively, of those answering the questionnaire stated they expected to be practicing doctors.

The seniors who responded to the questionnaire in the years between 1944 and 1949 numbered 117, 93, 97, 73, 61 and 85. The freshmen who responded to the questionnaire between 1946 and 1948 numbered 82, 97, 119 and 124 respectively.

Hospital Training Desired Beyond Internship.—Almost without exception, the upper class and entering students hoped to be able to undertake an extended period of hospital training beyond their internship, as shown in Figure 1. This supports the statement of William A. O'Brien[11] that the majority of recent medical graduates do not wish to enter any kind of practice without further training beyond a year's internship. It was his belief that graduates in medicine today do not feel it is possible to master the medical knowledge they require in five years. This was a determining factor in the establishment of two-year internships for general practice under the direction of the University of Minnesota Medical School.[13]

Intentions to Seek Specialty Board Certification.—Figure 2 indicates how student interest in securing specialty board certification has declined in the postwar period. At all times during the past several years the aspirations of fourth-year and first-year medical students have corresponded very closely in this respect. An opinion is ventured that registrants in medical

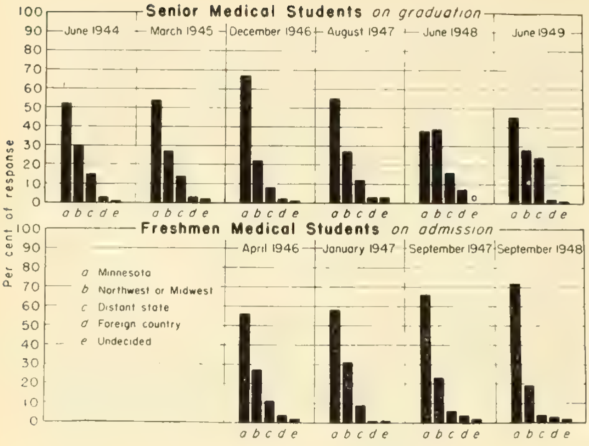

Fig. 5. Intentions as to residence.

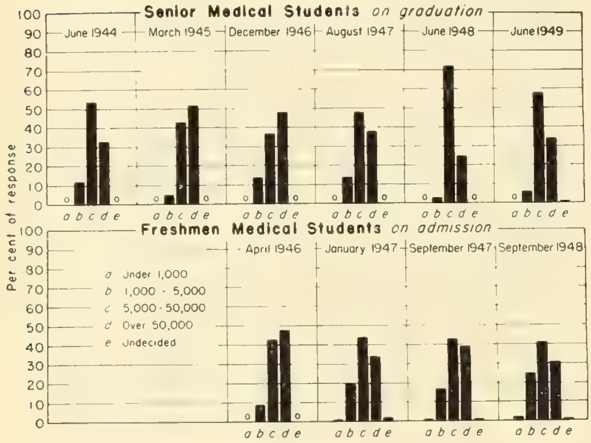

Fig. 6. Sizes of communities desired for practice.

schools have well-formulated intentions about their professional careers in advance of any presumed influence which results later from the examples set by clinical medical teachers or experiences gained in specialized hospital services.

Type of Practices Preferred.—One striking feature of Figure 3 is the popularity of the idea of practice in a small clinic. This trend in student preferences becomes increasingly apparent as the medical course progresses. At the time of questioning, the senior students in this survey had not yet participated in the class discussions conducted by guest lecturers who each year present to the students the opportunities of solo medical practice, of small and large clinic practice, of industrial practice, and of the governmental services, including the Medical Corps of the U. S. Army, Navy and Public Health Service.

TABLE I

	1944	1945	1946	1947	1948	1949
Percentages of Seniors with Families Resident and Non-Resident in Minnesota						
Resident	83	90	89	96	56	89
Non-resident	17	10	11	4	44	11
Percentages of Freshmen with Families Resident and Non-Resident in Minnesota						
Resident			83	86	87	87
Non-resident			17	14	13	13

TABLE II

	1944	1945	1946	1947	1948	1949
Percentages of Seniors by Years						
Size of Community Where Reared:						
Under 1,000	16		12	12	18	16
1,000 to 5,000	22		18	21	23	37
	——38		——30	——33	——41	——37
5,000 to 50,000	23		20	23	26	18
Over 50,000	39		50	44	33	45
Percentages of Freshmen by Years						
Under 1,000			12	9	20	13
1,000 to 5,000			12	21	18	18
			——24	——30	——38	——31
5,000 to 50,000			28	21	18	17
Over 50,000			48	49	44	52

Income Goals.—Upper classmen in the past few years appear to have developed somewhat greater financial ambitions than they exhibited formerly, although the number aspiring to definitely high incomes has not changed greatly since the war (Fig. 4).

Intentions as to Residence.—The returns represented by Figure 5 are consistant except in the case of the senior class in 1948. This class contained relatively large numbers of non-residents of Minnesota, and students whose families lived at a distance (Table I).

Sizes of Communities Desired for Practice.—The thinking of seniors and of first-year students as to the sizes of the communities which they prefer for practice is shown in Figure 6. Table II shows the sizes of communities in which the students of these several classes were reared.

Types of Remuneration Desired.—The intention was to distinguish the students who contemplate salaried positions versus whole-time private practice, and to reveal those students who aspire

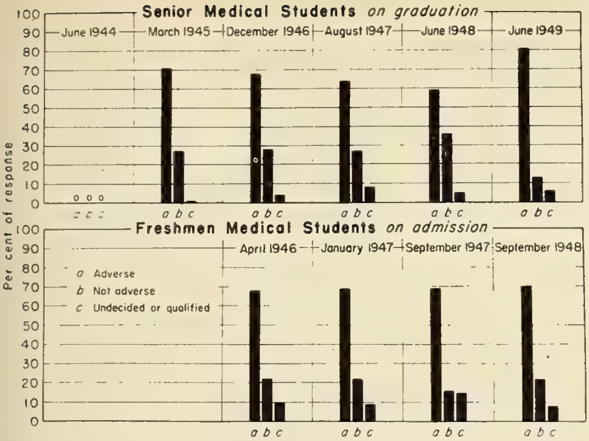

Fig. 7. Types of remuneration desired.

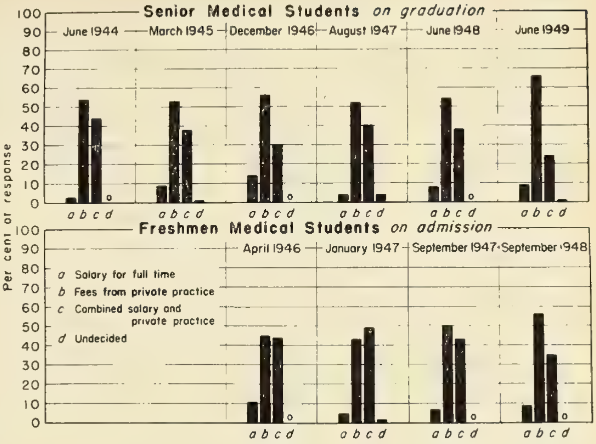

Fig. 8. Attitudes on government participation in medical care.

to a combination of medical teaching and private practice (Fig. 7).

Attitudes on Government Participation in Medical Care.—The consensus of each class appears clear (Fig. 8).

Summary

A survey extending over several years was conducted to determine the plans of medical students at one institution and appears to support the following conclusions:

Nearly every student wishes to undertake considerable hospital training beyond his internship. The principal limiting factors usually prove to be the financial stringency and unavailability of proper hospital appointments, rather than considerations of specialty practice versus general practice.

The present-day medical student seems fully to appreciate the advantages of clinic or other group practice.

In spite of prospects for good hospital facilities in small communities, recent medical graduates and students in the earlier years of the medical course continue to exhibit a preference for urban centers as they contemplate entering upon their medical practices.

First-year and fourth-year medical students are remarkedly alike in their plans and aspirations for future practice.

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SOCIAL AGENCIES AND TUBERCULOSIS CONTROL

The health officer responsible for tuberculosis control in his area, as an integral part of his work, should develop an understanding and working relationship with the social agencies in his community. Such a relationship would certainly benefit both agencies. The social agency will gain an insight into the specialized medical and public health problems associated with tuberculosis control, and the health agency will have an opportunity to see the positive contributions which social workers and social agencies can make toward the effective management of tuberculosis patients. Robt. J. Anderson, Chief, Div. Tuberc., *Public Health Report,* Dec. 2, 1949.

CHALLENGING PROBLEMS AND DEMANDS OF THE AGED AND CHRONICALLY ILL

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THE STUDY of the growth and development of the human race shows that the percentage of the population of the earth in the old age group is gradually increasing. Wars, disease and famine have, sometimes for short intervals, interrupted the steady augmentation of the older group. Today Brazil, India, Japan and U.S.S.R. are considered young; Canada, Italy, Spain and the U. S. A. are relatively young; while England, France, Germany and the Scandinavian countries are senescent. The French population suffers most among nations from old age. Since the aged are more prone to suffer from chronic disease than the young, the community must plan to provide ever increasing facilities for the care of the chronically ill. The most important or essential needs affecting the aged and chronically ill doubtless lie in the social, economic and medical fields. It behooves the medical profession, therefore, to consider the problems and demands emanating from the increase in the chronically ill and aged in order to aid the sociologists and economists in their solution.

The average life span of prehistoric man was eighteen years. During the height of the Roman Empire it rose to twenty-two years. In the Middle Ages it reached thirty years. In England it climbed to forty-one years during the middle of the nineteenth century. In 1900 the average length of human life in the United States was forty-nine years; in 1945, 62.5 years, and in 1949, over sixty-five years. The span of life varies too in different countries, depending on the progress of medical sciences, social welfare and economic growth and development.

While chronic illness is found in every decade of life, it is much greater in the later decades. It is estimated, for the country as a whole, that for the population over sixty-five years of age its incidence was 6.8 per cent in 1940, will be 7.9 in 1950, 10.2 in 1960, 11.9 in 1970 and 14.4 in 1980.

TABLE I. YOUR LIFE EXPECTANCY, U. S., 1950*

At birth you can expect		65.12	years of life remaining
At age 1	“	66.80	“
5	“	63.36	“
10	“	58.64	“
15	“	53.89	“
20	“	49.30	“
25	“	44.87	“
30	“	40.42	“
35	“	35.97	“
40	“	31.63	“
45	“	27.44	“
50	“	23.45	“
55	“	19.71	“
60	“	16.24	“
65	“	13.09	“
70	“	10.30	“
75	“	7.85	“
80	“	5:76	“

*Anticipated minimum expectancy based on current mortality trends.

“Longevity of the American People in 1944.” Statistical Bulletin, Metropolitan Life Insurance Company, 27:1-4, (May) 1946. In “How to Live Longer,” by Justus J. Schifferes.

TABLE II. PRINCIPAL CAUSES OF DEATH, U. S., 1900

1. Tuberculosis—now in seventh place!
2. Pneumonia—now in sixth place!
3. Diarrhea and inflammation of the intestines—now off the list!
4. Heart disease—up.
5. Diseases of infancy and malformations—way down now!
6. Nephritis—up.
7. Unknown and ill-defined diseases—off the list!
8. Cerebral (brain) hemorrhage—up.
9. Accidents—up.
10. Cancer—up.

From the U. S. Bureau of Census. In “How to Live Longer,” by Justus J. Schifferes.

TABLE III. KILLERS OF AMERICANS, 1949

		1947* Death Rate per 100,000
No. 1	Heart disease	318.4
No. 2	Cancer	133.4
No. 3	“Stroke”	90.6
No. 4	Accidents	70.7
No. 5	Kidney disease	55.3
No. 6	Pneumonia and influenza	43.2
No. 7	Tuberculosis	33.4
No. 8	Premature birth	28.3
No. 9	Diabetes	26.1
No. 10	Suicide	11.2
No. 11	Syphilis	8.9
	All Causes	1009.9

*Exclusive of stillbirths.

Adapted from Table 4, “Current Mortality Analysis,” Volume 5, Number 13 (August 27, 1948); Federal Security Agency, and National Office of Vital Statistics, Washington 25, D. C. In “How to Live Longer,” by Justus J. Schifferes.

The increase in life expectancy is attributed to reduction in infant and maternal mortality, less immigration, better living standards and advances in public health and medical science. The death rate in the United States demonstrates this improvement. In 1900, per 1,000 population the death rate was 17.2 per cent; in 1910, 14.7; in 1920, 11.3; in 1930, 10.7; and in 1947, 10.1 per cent.

The life expectancy in the United States, as

Retiring President's Address, Minnesota Academy of Medicine, Saint Paul, Minnesota, January 11, 1950.

TABLE IV. POPULATION UNITED STATES, 1940, BY AGE GROUPS

Age Group	Population	Per Cent
Under 5	10,541,524	8.0
5-9	16,684,622	8.1
10-14	11,745,935	8.9
15-19	12,333,523	9.4
20-24	11,587,835	8.8
25-29	11,096,638	8.4
30-34	10,242,388	7.8
35-39	9,545,377	7.2
40-44	8,787,843	6.7
45-49	8,255,225	6.3
50-54	7,256,846	5.5
55-59	5,843,865	4.4
60-64	4,728,340	3.6
65-69	3,806,657	2.9
70-74	2,569,532	2.0
75 and over	2,643,125	2.0

Total population: 131,669,275

Source: United States Census Bureau.

TARLE V. INCIDENCE, PER 1,000 POPULATION, OF CHRONIC DISEASE OR PERMANENT IMPAIRMENT AND OF INVALIDITY, ACCORDING TO AGE

Age in Years	Chronic Illness or Permanent Impairment	Invalidity
All ages	177.0	11.4
Under 5	34.2	1.9
5-14	68.3	3.1
15-24	82.9	4.5
25-34	159.2	5.6
35-44	221.0	10.4
45-54	273.4	15.7
55-64	344.3	27.8
65-74	467.1	53.5
75-84	513.6	72.7
85 and over	602.3	106.2

Source: National Health Survey, 1935-36, The Magnitude of the Chronic Disease Problem in the United States (Preliminary Reports, Sickness and Medical Care Series, Bulletin No. 6), Washington, U. S. Public Health Service, 1938 (processed), p. 14.

TARLE VI. ESTIMATED NUMBER OF INVALIDS DISABLED BY CERTAIN CHRONIC DISEASES IN U. S., 1937

Nervous and mental diseases	269,300
Rheumatism	147,600
Heart disease	144,200
Tuberculosis—all forms	77,900
Arteriosclerosis and high blood pressure	60,900
Diabetes mellitus	34,300
Nephritis and other kidney diseases	31,000
Asthma	29,200
Cancer and other tumors	28,100
Diseases of female organs	18,500

Source: United States Public Health Service, from "Geriatric Medicine," edited by Edward J. Stieglitz.

TABLE VII. PROBLEMS OF HOSPITAL PROGRAM

1. Quantity for every 1,000 people, 4.5 beds in general hospitals
Quantity for every 1,000 people, 2. beds for chronically ill
Quantity for every 1,000 people, 5. beds for mental patients
Quantity for every 1,000 people, 2.5 beds for tuberculosis patients
2. In 1948:

Type of Hospital	Existing beds	No. beds needed
General	467,000	260,000
Mental	429,000	307,000
Tuberculosis	84,000	85,000
Chronic	39,000	246,000
Total	1,019,000	904,000

Source: United States Census Bureau.

estimated by the Metropolitan Life Insurance Company, is shown in Table I.

In 1900 deaths from tuberculosis headed the list. Today tuberculosis is in seventh place. Pneumonia deaths were in second place; now, they are in sixth place (Table II). Cancer, accidents and cardiovascular diseases, however, have gone way up as the cause of deaths (Table III).

From Table V it can be seen that the incidence of chronic illness and invalidism increase progressively with age.

The six most common diseases causing invalidism in sequence are: nervous and mental diseases, rheumatism, heart disease, tuberculosis, arteriosclerosis and high blood pressure and diabetes. If heart disease, arteriosclerosis, high blood pressure and some cases of nephritic disease and rheumatism were combined under the term "cardiovascular diseases," then this group would occupy the first place (Table VI).

Chronic disease, except for severe economic national depressions, is the greatest single factor forcing people onto public assistance rolls.

Although the fate of the chronically ill and aged is frequently deplorable, it is often worsened by certain existing discriminatory practices in our social order. Urban industrialization has enticed the youth from the country to the cities. Today the population on the farms is less by 20 per cent than in 1920. Industry wants, as a rule, the young, strong and alert. Youth and the old are excluded. Economic and legislative compulsion have shortened the years of work.

During the depression, the youngest and oldest workers suffered most. Despite the excellent record and enormous capacity of workers in the fifties and sixties during the war shortage of manpower, industries continue to place unabatingly more and more employes on the retired list between the ages of sixty and sixty-five. Age, rather than the physical and mental status, too often determines when a worker is retired. As the population grows older and older, the gap between the span of life and working span, likewise, becomes wider and wider. Today his life expectancy is sixty-seven, working years forty-one and retirement 5.5 years. In 1975, if the trend persists, the span of retirement will be ten years.

Much has been spoken and written about the Federal Aid Insurance Program, part of the Social Security Act (1935) and later amended or changed by the 1939 Congress, but the benefits from this source are too small to be effective. In December 1947 the average benefit was $24.90, and average worker and wife received $39.60, widow and two children $48.00, and an aged widow $20.40. In addition to the inadequate benefits, the unduly restricted eligibility does not cover domestic servants, housewives, unskilled labor, clerks, professional individuals and many older workers. Current legislative movements favor coverage for practically all persons, a liberalized insurance status, a very substantial increase in benefits and the payment of cash benefits to the permanently and totally disabled.

If two-thirds of the deaths in the United States are due to chronic disease and 40 per cent of them occur under sixty-five years, and two-thirds with chronic disease are under sixty-five years, reduction of chronic disease rates first in the medical program. The ever increasing number of the aged only complicates and enlarges the picture. In different parts of the world, very different treatments have been accorded to the old. Chinese society, based on ancestral worship, stability, continuity and conservation, honored the period of old age. The Eskimos in the northwestern part of North America, facing a bitter struggle in a frigid environment, considered the aged a drain on their provisions and hence expected or encouraged them to wander off and die. In Labrador the Eskimos quietly dispatched the old. In Africa the Bushmen left them behind when moving camp. The Hottentot carried them to solitary huts and left them with meager provisions. The United States with its accent on youth, growth and speed has for the most part only ignored old age. Since the problems of old age and the chronically ill are gaining greater and greater prominence with each decade and the past solutions appear impractical in this age, it is necessary to explore means, first, that can be marshalled for immediate relief, and second, that can be initiated to meet future needs.

Today one-half of the population is over thirty years. In 1800 one-half of the population was over sixteen years. Now 10,000,000 people are over sixty-four years. By 1975, it is estimated 20,000,000 will be over sixty-five years. In 1975 one-third of the population will be over forty-five years, while in 1900 only 18 per cent was. Chronic disease accounts for 75 per cent of all the invalidism and partial disability in this country (about 2,500,000 invalids and 10,000,000 partially disabled). More than one-half of the chronically ill are under forty-five years. Between the ages of forty-five to sixty-four, chronic disease is four times as frequent as between fifteen to twenty-four years. More than 25,000,000 people or one-sixth of the population have chronic disease.

About 40 per cent of physicians' services are rendered to chronics, while three out of every four hospital patients in the United States are hospitalized for chronic physical or mental illness. Poverty and chronic illness often walk side by side. Persons on relief suffer from disability three times as frequently as persons with family incomes of $3,000 and over. Facilities for the chronic and convalescent are developed very poorly in the United States. In this country in 1930 there were set aside for this purpose 7.1 beds per 100,000 while England enjoyed 53.6 beds. In 1947, there were 12,210 beds in twenty-nine states, but 70 per cent of them were in four states, namely, California, New York, New Jersey and Pennsylvania, while 20 per cent were in eight states, i.e., Illinois, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Ohio and Washington.

The aged and chronically ill, it would appear, ought to interest the medical profession not only from a strictly scientific aspect, such as improving health and preventing, curtailing or treating disease, but also from the fact that if this group of the population does not receive proper medical care in the home, nursing home or hospital, the state and federal government will encroach more and more on the rights and privileges of the average medical practitioner. In other words the medical profession should aim to keep the aged at work as long as possible and the chronically ill rehabilitated wherever feasible. At the present time facilities for retraining, rehabilitation and occupational, physical and educational therapy are sadly neglected. These measures should receive the hearty endorsement of the whole profession. The aged, too, in an appropriate occupation ought to be retained by industry or any other employing agent, despite reaching the usual retirement age of sixty or sixty-five, as long as they are capable.

This change in policy would reduce the span of years in retirement or unemployment and thus add more comfort to the old and decrease the economic burden of maintenance on the community, state and federal governments.

Recent surveys in various cities and states reveal a great deficiency of hospitals, physicians and nurses as well as nursing homes and homes for the aged with the necessary personnel. Boarding and custodial homes and various private institutions for the aged or chronically ill are also deficient and many need much renovation before they may be acceptable. A recent New York survey gives startling figures of deficiency in all their institutions and personnel.

In 1948 the United States Census Bureau revealed that 39,000 existing beds were allotted to the chronically ill, while 246,000 actually were needed in the various hospitals of the country (Table VII).

Even this brief, general and very inadequate exposition of the problems emanating from the ever increasing number of the chronically ill and aged demonstrates that an adequate solution will be difficult, prolonged and expensive. It will call for a co-operative spirit and effort among all groups in our social order extending from the local community and state to the federal levels. Some parts of the country are awake and aware of these problems. Cities like Baltimore, Chicago, Milwaukee, Philadelphia, New York and St. Louis, as well as the following states—California, Connecticut, Illinois, Indiana, Maryland, Massachusetts, Minnesota and New York—have already created definite plans, some of which are either operating or under study for co-operative action while others are undergoing construction to meet the immediate needs and future demands or contingencies.

Provisions have been made for home care, nursing homes and hospitals including the training of the proper personnel for all respective places. At the hospitals, especially those attached to teaching institutions or medical schools, a definitely outlined research program has been either inaugurated in some or planned for in other institutions. Every effort has been explored, studied and undertaken also to educate the public not only how to cope with the present emergencies but also to throw light on methods and measures employed to make chronic disease and old age more useful and less miserable It is estimated that early medical services would reduce chronic disease by 20 to 30 per cent. If physical therapy and re-occupation or rehabilitation, as its advocates claim, would reduce dependency in chronic disease by another 20 per cent, then the family, city, community, state or federal government would experience a marked financial reduction in the care of this group.

Now let us glance at Minnesota.

While some communities and states started earlier to study and evaluate the various problems and demands accompanying the chronically ill and aged, Minnesota made up for the delay once it undertook the job. The 79th Congress in passing the Hospital Survey and Construction Program gave additional impetus to the task. The federal legislation authorized an annual grant to the states over a five-year period to assist in constructing and equipping needed hospitals and public health centers, provided a state submitted an over-all plan for approval. Such an initial plan was completed in 1948 and revised with priorities in 1949. In general, the whole project is financed, two-thirds by the community and state and one-third by the federal government. The law provides for Federal-state co-operation and designates the United States Public Health Service as the Federal administrative agency. "In Minnesota, the State Board of Health is charged by chapter 485, Laws of Minnesota, 1947, with responsibility for co-operation with the United States Public Health Service in the conduct of the program. The Federal law required planning of facilities in each of the following five categories of institutions: General and Allied Special Hospitals, Chronic Disease Hospitals, Mental Disease Hospitals, Tuberculosis Hospitals and Public Health Centers." Accordingly, brief studies and evaluations of facilities were made; first, of the homes for the aged and the chronically ill: second, a rather comprehensive and detailed report of the existing hospital beds and facilities followed with a five-year plan for future construction of hospitals and public centers needed to comply with the Federal regulations and stipulations.

The homes for the aged numbered forty-eight, with a bed capacity of 3,228. Only forty-two homes had a capacity of twenty-five beds or more. Forty-three homes were maintained by corporations. The Minnesota Soldiers' Home, state owned, had 395 beds for men and 120 beds for women. Four homes were maintained by counties, with a total of ninety-eight beds.

There are 174 homes totalling 3,543 beds for the chronic and convalescent in Minnesota. Only twenty-nine homes have a capacity of twenty-five beds or more. Eight homes are maintained by corporations, 160 by individuals and six by counties. The counties combined have 275 beds. It is well to note that some of these homes have already discontinued to operate since the investigation took place. Others will have to be remodeled and undergo variable changes to meet the necessary and minimum requirements of fire hazards, frequent accidents and health provisions. Under such circumstances the bed capacity has been very much reduced and will continue to decrease as the various public safety departments get more and more interested and enforce their respective regulations in the homes and hospitals for the aged and chronically ill.

In order to understand and appreciate what hospital facilities are present or planned for the aged and chronically ill, it is necessary to review briefly the requirements and demands laid down for all the health institutions by the United States Federal Health Services. This legislation specified that hospitals shall be divided into five categories, namely: (1) general and allied special hospitals including orthopedic, pediatric, contagious: ear, eye, nose and throat, obstetrics and gynecologic services; (2) mental disease hospitals; (3) tuberculosis hospitals; (4) chronic disease hospitals and (5) public health centers.

The General and Allied Special Hospitals, based on the 1947 census of Minnesota population of 2,888,000, should contain 12,966 beds, allotting 4.5 beds per 1,000. The state of Minnesota is divided into eleven regions. In this group the hospitals are divided into a base hospital, eleven regional hospitals, seventy-five intermediate area hospitals and 43 rural hospitals. The most efficient co-operative and co-ordinative efforts and policies are to exist among these institutions. The University Hospital with the Twin Cities Hospitals is designated as the base area. Outside of the Twin Cities are the eleven regional hospitals dependent on and co-operating with the base institutions. The intermediate area hospitals are obliged to depend on the regional, and the rural again on the intermediate area hospitals. The base hospitals with their various research and teaching centers will enjoy the largest bed capacity. In the rural parts the hospitals will be small and have only 2.5 beds per 1,000 and take care largely of common illnesses, injuries and obstetrics. In the allocation of these various hospitals many factors were considered such as distance (forty miles between hospitals), population guide, bed deaths and bed births ratios, accessible roads and existing hospitals. The total beds needed in this group is 12,996. There are now 8,665 acceptable beds.

The Minnesota Mental Disease Hospital Plan, based on five beds per 1,000, requires 14,440 beds. At present there are only 7,789 beds.

Tuberculosis Hospital Plan, allotting beds numbering two and a half times the average annual number of deaths per 1,000 over a five-year period, should have 1,630 beds. The inventory shows 1,995 beds. When two institutions which normally house sixty-five patients are closed, there will still remain 1,930 beds.

The Minnesota Plan for Public Health Centers (1949) provides for one center per 30,000. Appropriate legislation is needed to endorse and authorize the recommendation. There will then be eleven centers. There are three at the present time.

Finally comes the Minnesota Chronic Disease Hospital plan. These hospitals, wings of a hospital or segregated units adjoining a general hospital, are intended to provide medical care for chronic invalids. Alloting two beds per 1,000 population, Minnesota is entitled to 5,776 hospital beds. It has 598 beds. The 1946 hospital survey showed 128 homes and hospitals with a capacity of 2,839 beds. The homes gave only monthly domiciliary care. In 1948 a final analysis indicated that there were only 598 beds. In rural areas 1.5 beds per 1,000 will be allocated in existing or to be built general hospitals. In the Twin Cities 2.5 beds per 1,000 or more will be allowed where research, teaching and special care can be rendered more readily when required and necessary. There will be hospital beds and facilities in sixty-seven hospitals divided into thirty-seven areas or locations to meet the convenience of travel, medical health centers and distribution of population. The Ancker and Minneapolis General Hospitals, as teaching institutions, will proportionately have a substantial increase in bed capacity. The guiding principles for this plan are to locate the hospitals as near as possible to those needing them, to take in account the urgent desirability of constructing units in conjunction with already existing general hospitals for more efficient diagnosis, treatment and economy and finally to look forward to superior means, methods and equipment for administering physical therapy and occupational rehabilitation.

Since there is not only a shortage of hospital beds but also of trained personnel for the future needs in such hospitals, priorities will be given to the construction of sub-units of general hospitals and projects operating as units of teaching hospitals for training personnel for the future needs in chronic disease hospitals. Next, regional hospitals will be built, around which later the remaining units should follow.

When the Minnesota Chronic Disease Plan gets well under way, and perhaps long before the five-year period is passed, there will be a tremendous improvement in the care and welfare of the aged and chronically ill. Its association with the University of Minnesota Medical School will greatly aid the growth and development of the movement. Research in chronic diseases and old age should also advance more readily, because of the proximity of the other various research medical centers like the cancer, arthritic, pediatric and cardiac institutions for the exchange of ideas, facts and experiments.

It is apparent, however, that Minnesota, in order to give satisfactory care to the aged and chronically ill, needs more: (1) hospital beds, (2) physicians, nurses and trained personnel for this purpose, (3) nursing homes with proper supervision and licensing to protect the ill from social, economic and medical abuses, exploitations or hardships, (4) housekeepers, social workers, nurse's aids, et cetera, who would help the ill and aged in their homes, (5) research into chronic disease and the aged, (6) appropriate legislation extending from the rural districts to the state capitol to facilitate the aims, means and measures advocated by those well trained and appointed to accomplish the task.

Conclusion

1. It has been shown that the percentage of the chronically ill and aged is increasing with time.

2. The increase is caused largely by a reduced infant and maternal mortality, improved drugs, better medical care, more restricted immigration, better living standards and various scientific advances.

3. The increase in the chronically ill and aged creates problems and demands in the community which are more social and economic than medical.

4. Adequate solution of these problems depend on several sources: (1) the community, state or federal government, (2) education and co-operation of all the groups in our social order, (3) medical personnel to serve in hospitals, nursing homes, rest homes or ordinary homes.

5. A brief account has been given of the immediate needs and future plans in a few large cities and states for the chronically ill and aged.

6. Finally, a résumé of the Minnesota Plan for Hospitals and Public Health Centers is discussed insofar as it concerns primarily chronic disease hospitals and future plans.

(For discussion, see Page 518)

AUTOMOBILE ACCIDENTS

There were fewer automobile accident deaths on streets and highways of the nation last year than in 1948, but more injuries, according to figures released recently by The Travelers Insurance Companies.

Fatalities in 1949 totaled 31,800, compared with 32,200 in 1948, the companies reported, but injuries last year soared to an all-time high of 1,564,000. The 1948 figure was 1,471,000 injured.

These statistics are highlights of "Maim Street," sixteenth in an annual series of traffic safety booklets issued by The Travelers. The Hartford insurance firm maintains an accident statistical bureau which collects and analyzes accident data from the forty-eight states.

Excessive speed headed the list of accident causes in 1949, as it has in most recent years. "Exceeding the speed limit" caused 10,100 deaths and 398,700 injuries in 1949, according to the booklet. "Speed was a greater factor in traffic casualties last year than at any time in history," the report states.

There were 890 fewer fatalities among pedestrians in 1949 than in 1948, but 180 more persons were killed crossing streets between intersections last year than in 1948.

Last year, for the first time since the war, the percentage of 18- to 24-year-old drivers involved in accidents took a downward turn. "Youthful drivers, however, are still the cause of thousands more deaths and injuries than their numbers warrant," the booklet declares.

MELANOMATA AND NEVI

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NEOPLASMS of the pigment cells of man have stimulated the interest and imagination of physicians from the time of Hippocrates. Dupuytren, Laenec, Norris, Carswell, Paget, Virchow, Handley, Unna and Pringle are among the early authorities. Ever increasing numbers of important contributions have appeared in the first half of the twentieth century. Those of Masson, Pack, Becker and Allen are particularly outstanding. Probably no other subject in the field of oncology has created so much mystery, misunderstanding and difference of opinion as that of the "black cancer." The cloud of ignorance about this subject is slowly being dissipated.

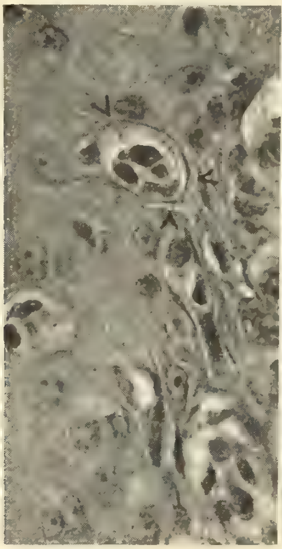
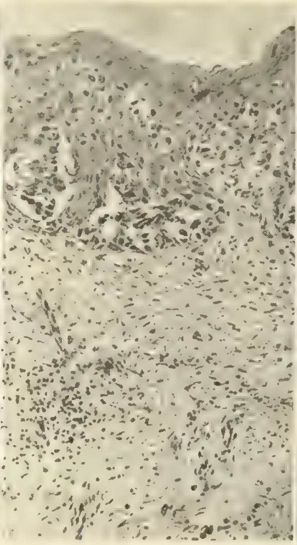
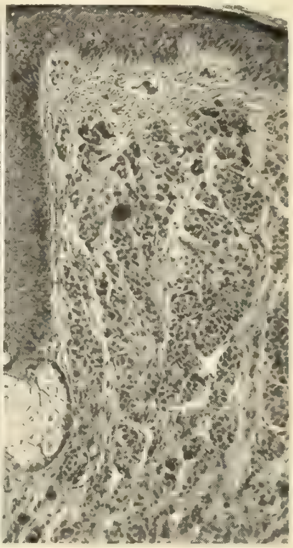

Fig. 1. (*left*) Melanoma. Arrows indicate prickles of ring of fused cytoplasm of epidermal cells which have changed to melanoblasts.

Fig. 2. (*center*) Junction nevus. Clear cells in epidermis.

Fig. 3. (*right*) Intradermal nevus. Clusters of clear cells in the dermis.

Histogenesis

Two theories of origin of melanomata are important. The neuralist concept of Masson[21] has been the most popular. Unna's theory[38] of epidermogenesis is possibly the most widely accepted by histopathologists. Repeated critical analyses of the transitions of epidermal cells into melanoblasts in melanomata of the skin leaves little doubt concerning the intimate relationship of these two cells. This metaplasia results in a separation or retraction of the nucleus with a narrow rim of protoplasm from the outer border of cytoplasm) frequently leaving the prickles intact. Thus single or small groups of melanoblasts are found inside a fused ring of protoplasm with the prickles of the original epidermal cells present (Fig. 1). Melanomata of the skin are carcinomas in spite of their occasional sarcomatous appearance.

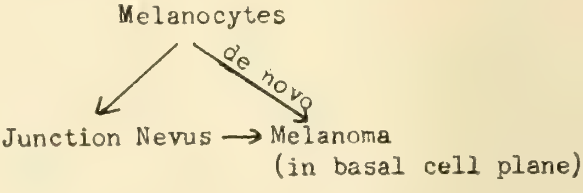

Fig. 4. Histogenesis of melanoma.

It is now agreed by the principal authorities that the "melanoblast," a matured cell hereinafter called melanocyte, is the precursor of both pigmented nevi and melanomata. The blastomeric origin of this cell is *the point* of disagreement. Melanocytes when stained by Bloch's "dopa" technique appear as dendritic cells lying among

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the palisaded basal cells of the epidermis.[21] They can be stimulated to increase in numbers and to greater pigment production by ultraviolet, alpha, roentgen and radium rays.[9] They are found in increased numbers in Addison's disease and other maladies. They form pigment granules and apparently distribute these granules to the basal and other cells.[21] Melanin pigment is a polymer of oxidized tyrosine and related chemically to adrenalin.[16] When the melanocytes are stained with hemotoxylin and eosin, they appear as clear cells "cellules clares" (Fig. 2). It is generally agreed that this cell is the parent of the nevus cell in all of its bizarre morphologic forms, including the whorls sometimes referred to as attempted formations of Wagner-Meissner nerve endings. In nevus morphogenesis it is also generally believed that the nevus cells migrate downward "abtropfung" from the epidermis into the dermis.[3] A substantial proof of this lies in the fact that 98 per cent of nevi in children have the nevus cells in the epidermis, that is, junction nevi (Fig. 2), while only from 12 to 25 per cent remains as junction nevi in adults.[36] In the remainder the nevus cells are all subepidermal or intradermal nevi (Fig. 3). Melanomata of the skin most often develop in junction or compound nevi; occasionally they appear to begin *de novo* without a preceding lesion. This transition originates in the palisading basal cell plane of the epidermis and rarely if ever in the dermis not involving the epidermis (Fig. 4).

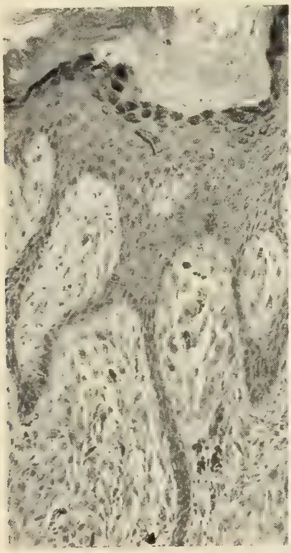

Fig. 5. (*left*) Juvenile melanoma.

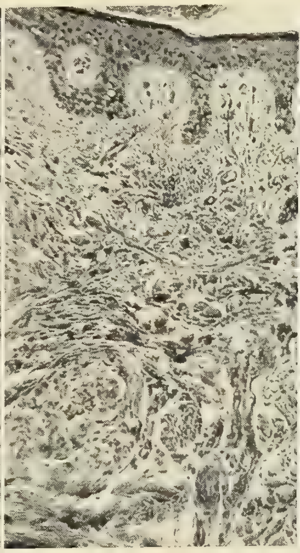

Fig. 6. (*center*) Blue nevus. Trabeculi of slender black cells running parallel to epidermis are the melanocytes.

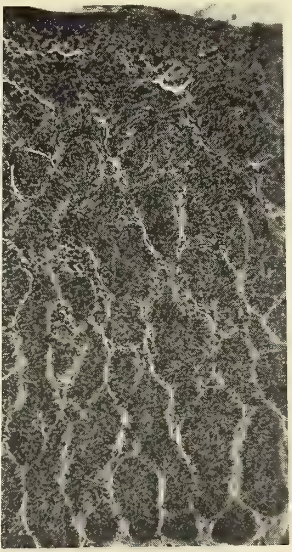

Fig. 7. (*right*) Basal cell carcinoma. Columns invading the corium.

Classification

Allan's histologic classification[3] of nevi (Table I) is combined with a widely used clinical classification.[30] The junction nevus (lentigo maligna) has nevus cells confined to the epidermis (Fig. 2). Those lesions where the nevus cells are in the dermis alone are intradermal nevi (Fig. 3) while a mixture of the two are compound nevi. Juvenile melanoma (Fig. 5) has the histologic characteristics of melanomata of adults yet they very rarely metastasize.[28, 36] The blue nevus (Fig. 6) is probably not histogenically related to the other pigmented nevi but are classified with them for clinical and morphologic reasons. They are probably neurogenic in origin and hardly ever become malignant.[23, 39]

TABLE I. CLASSIFICATION OF NEVI

Histologic	Clinical
1. Junction Nevus	1. N. Spilus-macular
2. Intradermal Nevus	2. N. Verrucosus-warty
3. Compound Nevus	3. N. Pilosus-hairy
4. Juvenile Melanoma	4. N. Papillomatous-pap.
5. Blue Nevus	5. N. Lipomatodes-fatty
	6. Blue nevus

There are, then, three distinctly different lines of benign and malignant neoplasms primary in the epidermis excluding its appendages (Table II). The nonmetastasizing basal cell carcinoma (Fig. 7) stands in sharp contrast to its sister, the melanoma (Fig. 8), which is the most widely metastasizing malignancy known. The epidermoid or squamous cell carcinoma (Fig. 9) is distinctly intermediate in its malignant traits and tends to remain in lymph nodes near the primary lesion. Related to the basal cell carcinoma is the benign neoplasm called senile verruca or benign epithelioma (Fig. 10). Both the common epidermoid papilloma and the keratosis (Fig. 11) are benign neoplasms representing the epidermoid cells as a whole.

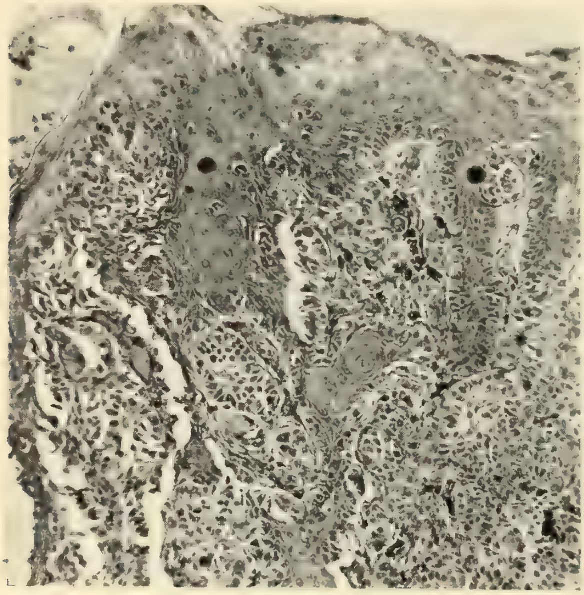

Fig. 8. Melanoma arising in a nevus. Note basal cell planeinvolvement.

Etiologic Factors

The six principal etiologic factors in the development of melanomata are: nevi, heredity, hormones, trauma, skin color and age. At least 50 to 80 per cent of melanomata[15, 26, 40] have been preceded by nevi. The great bulk of nevi are present at birth. Those appearing for the first time in adults carry a greater significance in their carcinogenic properties.[15] Both pigmented nevi and melanomata of the eye have been described as having genetic factors.[20, 30] How important heredity is in the development of either nevi or melanomata remains for future elucidation.

The effects of hormones on the development of melanomata is particularly apparent in the contrast between the rare occurrence of these malignancies in the prepubertal age group[14, 36, 40] and the more frequent and extremely malignant nature of the lesions developing in adolescence and in pregnancy.[29, 31] Cures are very rare in the latter two groups.

TABLE II. NEOPLASMS OF EPIDERMIS

Cells	Benign	Malignant
Basal Cell	Senile Verruca	Basal Cell Carcinoma
Epidermal Cells	1. Keratosis 2. Papilloma	Squamous Cell Carcinoma
Melanocytes	Pigmented Nevus	Melanoma

There is almost unanimous agreement[10, 13, 15, 25] concerning the relationship between trauma and the origin of the melanomata, yet much of the evidence is based upon unscientific data.[3, 7, 11] For instance, in one group of 162 cases[40] practically one-fourth of the melanomata were considered to have started as the result of improper medical care of what was originally supposed to have been a nevus. There is to my knowledge no histologic proof that melanomata have resulted from incomplete removal of a nevus. The original physician's inadequate therapy was not properly guided by a biopsy. However, one cannot disregard the overwhelming numbers of authors who point out the importance of such injuries as bruises, cuts from shaving, scratches, picking and other traumata to nevi and to apparently normal skin as an etiologic factor in the development of melanomata.

Melanomata appear to be relatively more frequent in blond individuals including those with sandy complexions and in skins which are sensitive to sunlight.[28, 31] The incidence of melanomata in negroes is not more than 30 per cent of that in the white race.[12, 24] A high percentage of the melanomata in the colored race appear in pale areas such as subunguinal and on palms, soles and mucous membranes.

When the figures are corrected for population distribution, one can say that melanomata become increasingly frequent with every year of life. The malignancy has occurred in all ages from birth[37] to advanced senility. By far the greatest number of cases occur between the fourth and seven decade.

Frequency

Melanomata represent from 1 to 2 per cent of all malignancies[19, 22] and constitutes approximately 20 per cent of all primary skin cancers.[30] There is an estimated occurrence of two cases per one hundred thousand population per year.[19] There is approximately the same incidence in the two sexes.[26] Pack[28] has found an average of twenty visible pigmented moles in adults and states that every member of the white race has at least one mole. On special request two local dermatologists[8] diligently studied the skins of 240 men and women in a one-day cancer detection clinic and found three individuals completely free of visible pigmented or non-pigmented nevi. Thus approximately 1 per cent of the white population may be free of nevi. This does not alter the possibility of a melanoma developing in any individual.

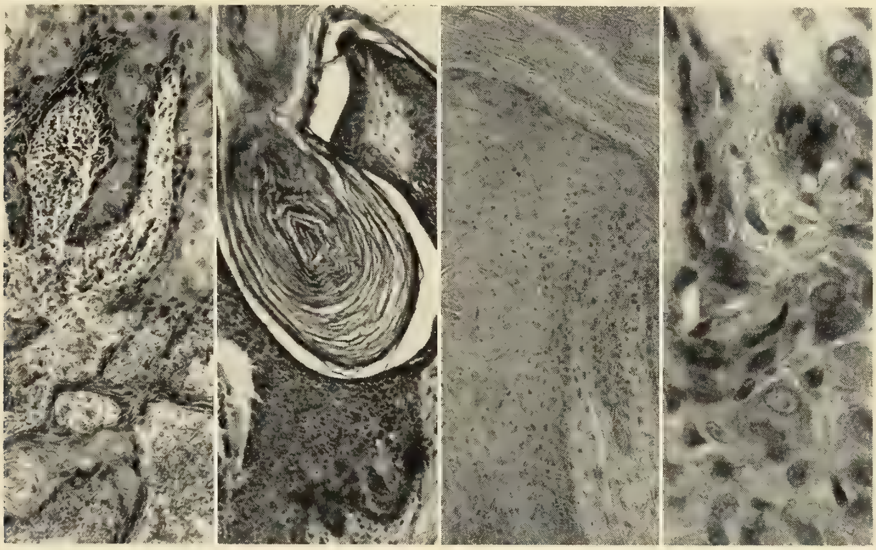

Fig. 9. (*left*) Squamous cell carcinoma.
Fig. 10. (*left center*) Benign epithelioma made up of basal cells.
Fig. 11. (*right center*) Keratosis, a precancerous lesion.
Fig. 12. (*right*) Juvenile melanoma. Three giant cells present.

TABLE III. ANATOMIC DISTRIBUTION-MELANOMA

*General Location (1,383 cases)		**Specific Sites (851 cases)	
Head and neck	28.8%	Toe Nails	2.2%
Trunk	22.2%	Finger Nails	1.2%
Upper Extrem.	14.0%	Vulva and Vagina	3.6%
Lower Extrem.	31.4%	Oro-Nasal	2.6%
No Primary	3.9%	Rectum anus	1.5%
		Male genitalia	0.4%

†Eye—Approximately 20%. Meninges—Very rare. Internal organs—Rare, if ever.
*1,4,7,11,14,15,19,40. **28. †19.

The anatomic distribution of melanomata is shown in (Table III). There is a considerably greater frequency of melanomata over nevi on the genitalia, and on the feet and hands including the nails. This is of great practical importance in prophylaxis.

Pathology

Although the bluish and bluish black, raised, smooth-surfaced lesions are the most common and easily recognized, light brown, pink or amelanotic lesions are significantly frequent and may have their origin in nonpigmented nevi. There is a wide variety of lesions which must be differentiated from both the more dangerous junction nevus and the melanoma. These include among others the list in Table IV. In the hands of expert dermatologists, there is an 87 per cent accuracy in diagnosis of pigmented nevi.[7] No physician can depend entirely upon the clinical appearance of a "mole" for the diagnosis.[2,7,28,34] The most experienced experts require routine microscopic study of every pigmented skin lesion treated. Contrary to the general opinion, biopsies probably inhibit the spread of malignant skin lesions, because the inflammatory reaction set up by the trauma occludes the lymphatics.[7,9]

TABLE IV. DIFFERENTIAL DIAGNOSIS-MELANOMA

Pigmented Nevi
Nonpigmented Nevi
Blue Nevi
Seborrheic Keratosis
Papillo-epithelioma
Verruca Vulgaris
Basal Cell Carcinoma
Pyogenic Granuloma
Hemangioma
Lentigo
Adenoma Sebaceum
Fibroxanthoma
Chronic Inflammation

Histologic grading of skin melanomata according to the degree of embryonic shift of the neoplastic cells is possible but not practical for prognostic or therapeutic purposes. The very earliest change from a junction nevus to a melanoma may represent a difficult histologic diagnostic problem. This is aggravated by the fact

TABLE V. PROPHYLAXIS-MELANOMA

I. Excise and Examine Microscopically the following "Nevi":
1. Feet
2. Hands
3. Subungual
4. Genitals
5. Sites irritation
6. All darkly pigmented nevi of childhood
7. With alteration in size, color, elevation, ulceration, inflammation, scaling, bleeding, crusting, tenderness, itching and increased vascularity.
8. All gray blue, blue black and black nevi
9. Nevi appearing—adult

II. Conservative Therapy of Nevi only with biopsy

TABLE VI. THERAPEUTIC PRINCIPLES-MELANOMAS

1. Wide resection.
2. Excision regional lymphnodes and dissection in continuity where practical.
3. With node metastases:
    - (a) Amputate extremity and excise proximal lymphatics if dissection in continuity is not practical.
    - (b) Alternative-quarterectomy.
4. Cosmetic and functional restoration secondary to eradication.
5. Lesions for special consideration:
    - (a) genitals (b) midline
    - (c) isolated metastases (d) eye

that already metastasized lesions may appear histologically innocuous. The great bulk of melanomata, however, are diagnosable at a glance because of the anaplastic changes present. The epidermis is always involved if the lesion is primary and is generally not invaded in skin metastases. There is a possibility that rare melanomata of the skin may exist without metastasizing for years. Prepubertal melanomata may possibly be differentiated from others by the presence of multinucleated and single nucleus giant cells[36] (Fig. 12).

The original extension of melanomata appears to be predominantly by way of the lymphatics. There is a frequent local appearance of satellite lesions which at times demonstrate a retrograde progression along lymphatics in the skin.[30] The recent brilliant successes with radical surgery only emphasizes the lymphatic type of spread of these malignancies.[28] The differentiation between chromophores or phagocytes containing melanin pigment and true melanoblasts in a regional lymphnode is a problem of the greatest importance to the pathologist and surgeon, particularly in respect to lesions on the distal parts of the extremities. Potassium permanganate solution or chlorine fumes are used to fade the melanin pigment, thus permitting greater visibility of the cellular structure and aiding in this critical differentiation.

Melanomata of the eye[12] and meninges[22,35] have been purposefully avoided in this article because they are special subjects not closely related to the skin and nevi. The rare precancerous melanosis of the conjunctiva occurring between the ages of forty and fifty years is probably a form of junction nevus. It is interesting that this lesion will clear with x-ray therapy.[33] If not so treated it generally progresses to a radioresistant, vicious melanoma within five years.

Prophylaxis

There is an almost unanimous agreement upon the importance of prophylactically excising and studying microscopically pigmented and non-pigmented nevi involving the feet, hands, subungual areas and genitals of both male and female (Table V). These nevi are practically all of the junction type and are very dangerous. Beyond this, most authors stress the importance of removing nevi from sites of irritation such as the shoulders, belt, garter, brassiere, collar and shaving areas.[1] Certainly all nevi which have alterations in size, color, elevation, ulceration, inflammation, scaling, bleeding, crusting, tenderness, itching or vascularity should be removed and studied microscopically for the presence of malignancy.[1, 7, 26, 34] Some authorities feel that all darkly pigmented nevi in childhood,[29] all gray blue, blue black and black nevi in adults and all nevi appearing during adult life should be removed.[7] One cannot afford to use conservative therapy on nevi, that is, electric desiccation, carbon dioxide snow, cautery, inadequate surgical excision, et cetera, without having taken a biopsy.

Therapy

The therapeutic principles in cases of melanomata (Table VI) take into account the extremely early metastasis to regional lymphnodes and skin, the very bad prognosis and the proved curative value of radical surgery. Only 2.5 per cent of 217 cases responded to radiation therapy.[30] The usual procedure in our experience is that the physician has removed a dark mole and sent it in for biopsy study. It proves malignant. Immediately a much wider excision of the original lesion is accomplished with a resection of the regional lymph nodes. Whether the regional lymph nodes are palpably enlarged or not does not alter the treatment.[18, 30] If the original lesion is on the trunk or on a proximal part of the extremities, a dissection in continuity including all of the skin and lymphatics in the immediate vicinity and between the lesion and the regional lymph nodes is resected.[18,27,31,32] If the regional lymph nodes contain malignant cells and the original lesion is beyond the range of possible dissection in continuity, then the limb is amputated and proximal lymphnodes are resected.[10, 11, 17, 28, 32] The alternative is a quarterectomy.[11, 28] Sufficient experience with this procedure is not yet recorded for comparative evaluation. Both physicians and patients are frequently blinded by the innocuous appearance of small skin lesions, whereas, as a matter of fact, they are as dangerous as an osteogenic sarcoma.

Lesions occurring on the genitals are of the most serious nature and require a radical vulvectomy or resection of the male genitalia with complete resection of skin and lymphatics to both inguinal areas and including lymphatics along the iliac vessels. Midline lesions frequently extend in two or more directions. They may require resection of both axillae or both inguinal areas. If near the umbilicus, resection of this structure and the round ligament is indicated. These lesions can also spread to the axillae and inguinal areas.

Prognosis

As in the case of carcinomata of the breast the usual five year survival ratings of patients with melanomata are not accurate. The number of deaths occurring during each year following the diagnosis of melanoma in a group of sixty-seven fatal cases is listed[14] in consecutive order: 19, 15, 17, 4, 2, 3, 2, 2, 2, and 1. Thus 15 per cent of the patients expired as a result of their malignancy during the second 5-year period.

Prognosis according to age reveals a slight improvement with increasing age except for the prepubertal group in which there are only rare deaths.[28] The puberty and pregnancy cases have a particularly bad prognosis.

There is a relation of prognosis to anatomical site.[14,31] This is most apparent in the slower growing subinguinal melanomata.[25,28] However, the difference in my opinion is not sufficient to alter the principles of therapy listed above. Genital lesions are particularly deadly.[28] Very early melanomata of the skin as evidenced histologically and the rare "Freckle" type[1] have a better prognosis. There is no significant variation in prognosis in the different histologic forms of skin melanomata as there is in melanoblastomas of the eye.[12]

An accurate comparative evaluation of the cure rates resulting from various methods of surgical therapy such as: local excision, local resection with dissection of regional lymphnodes, dissection in continuity, amputation, quarterectomy, et cetera, cannot be accurately compiled from the literature. The recent more radical surgery at the Memorial Hospital in New York[28] has increased the five-year survival rate for melanomata by 600 per cent. This improvement is far greater than that experienced as the result of radical surgery for almost any other common variety of malignancy.[31] A review of 595 cases from this institution[28] reveals a five-year survival of 18 per cent of patients who had no demonstrable regional metastases and a 15 per cent survival of those with regional metastases.

Conclusions

1. Histogenesis: Melanomata and nevi should be classed as epidermal neoplasms.

2. Classification: Allen's division of nevi into junction, intradermal, compound and blue nevi is favored.

3. Etiology: The principal etiologic factors in melanomata are: nevi, heredity, hormones, trauma, skin color and age.

4. Frequency: The frequency of nevi and melanomata make these diseases every physician's business.

5. Pathology: The crucial diagnostic tool, the biopsy, is manditory in the care of both nevi and melanomata.

6. Prophylaxis: The prophylactic excision of certain pigmented and nonpigmented skin lesions is important.

7. Therapy: Cosmetic and functional restoration is secondary to immediate eradication of the black cancer.

8. Prognosis: The prognosis has been greatly improved by radical therapy.

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(Continued on Page 465)

MANAGEMENT OF THE PYODERMAS

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PYODERMAS include all cutaneous affections produced by staphylococci, streptococci, or other pus producing organisms alone or in combination. This group of eruptions is large and occupies a prominent position in dermatology.

General Considerations

Pyodermas may be superficial or deep. They may be confined to one of the appendages of the skin or may not be associated with any particular structure. In general, the lesions are due to superficial external infection and reinfection. Therefore all possible precautions must be taken to eliminate reinoculation. Cleanliness is essential in prevention and treatment. Macerating procedures are contraindicated and irritating applications should be avoided. Excessive dryness and excessive greasiness of noninfected skin favor extension of pyoderma and must be treated. Obesity, an excessively high carbohydrate diet and other improper dietary habits as well as other factors favoring pyoderma should be corrected. Many pyodermas are secondary to other dermatoses or other diseases; therefore, cure or control of the predisposing disease is part of the management of pyoderma.

Value of Antibiotics, Chemotherapy, and Other Treatment

Topical application is valuable in superficial processes where effective contact between microorganism and remedy is at its optimum. When inflammation is deep and direct contact between microorganism and remedy is at a minimum, topical application is of little or no value.

Penicillin has almost entirely replaced the sulfonamides in the treatment of pyoderma because, in general, it is more effective and less toxic. Penicillin can be administered topically as a wet pack, ointment or spray; as an inhalent; orally in liquid, capsule or tablet form; and parenterally in several different vehicles. Although the reactions to penicillin are relatively few and usually of a minor nature, they may be severe and contraindicate the further use of penicillin. Because of this fact, penicillin probably should be reserved for parenteral use where it may be a life-saving medication.

The sulfonamides, largely replaced by penicillin in treatment of pyoderma, are penicillin's foremost substitutes when systemic administration is indicated. Both penicillin and the sulfonamides are contraindicated as topical applications for the same reason; namely, a reaction from topical application for an insignificant pyoderma may cause a reaction which later will prevent their systemic use for a serious disease. Desensitization to penicillin and the sulfonamides is theoretically sound but often has been found to be impractical. There are several topical applications that are as effective as penicillin or the sulfonamides, so that it seems unnecessary to use them in this manner.

Bacitracin, in the author's experience, is the most efficient topical application in the treatment of pyoderma. The sensitizing index is also very low. It is rare to see a reaction from bacitracin. Until recently it was only used locally, so the question of systemic use was not considered.

Tyrothricin has been used as a wet dressing with indifferent results. It appeared to be a mild medication, but equal or superior results were obtained in similar cases with boric acid (diluted one dram to a quart of water) or Darier's solution (diluted one part to sixteen parts of room-temperature water).

Streptomycin and chloromycetin may have a place in the treatment of pyoderma, but the author has had little or no experience with their use.

Aureomycin has been used recently with dramatic results in cases of sycosis vulgaris which had resisted the usual forms of treatment. The drug was given orally, 250 milligrams four times a day, and used as an ointment topically. The cost of aureomycin has been so prohibitive that one hesitated to use it in superficial infections, but it may well find a major place in treatment of pyogenic infections of the skin.

Furacin has been used as a topical application and has been found to have a very high sensitization index. The author has seen more contact

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dermatitis from furacin than any other topical application used in the treatment of pyoderma and has discontinued its use entirely.

Wet packs are probably one of the oldest agents used in the treatment of skin infections. They are of value in treatment of both superficial and deep pyoderma. The packs must be both thick and allow evaporation. A porous material such as washed surgical gauze makes an ideal pack. Packs should never be covered with oiled silk, rubber, or other impermeable substances because this prevents evaporation and promotes maceration. It is important that the pack be kept wet, but the degree of heat is unimportant; the temperature of the pack should be regulated to give the patient maximum comfort. The fluid used to make the pack should not irritate the eruption or surrounding skin.

The old topical applications such as cinnabar (red mercuric sulphide) in a shake lotion, ammoniated mercury ointment, quinolor compound ointment alone or with boric acid ointment, equal parts of diachylon ointment and boric acid ointment, and sulfur or vioform in lotions or ointments still have a prominent place in the treatment of superficial pyoderma. They should be thought of and brought to use when the newer remedies fail.

Autogenous and stock vaccines and staphylococcus toxoid have been very disappointing in this author's hands. Alterative procedures such as injections of sterile milk, autohemotherapy, et cetera, also have been of doubtful value.

Superficial roentgen ray therapy has been of considerable aid in the treatment of certain pyodermas in the past. Whether the antibiotics and new drugs will eliminate the use of roentgen rays remains to be seen. Certainly the newer drugs and antibiotics should eliminate the mutilating surgical procedures previously used in the treatment of furuncles and carbuncles.

Specific Pyodermas

Impetigo contagiosa is the most common of the superficial pyodermas and usually responds to topical applications. Bacitracin ointment is the remedy of choice. If the eruption does not show evidence of healing after twenty-four hours, one of the other remedies previously discussed should be employed. The patients are instructed to use their own towels, linen, et cetera, and to boil after use. It is advisable for the patient to sleep alone. Adhesive tape should not be used to hold bandages on the skin. This often causes maceration and spread of the eruption. The involved and surrounding parts are washed twice daily with soap and water with the hands or a soft cloth. The ointment is applied often enough to keep the lesions covered. Crusts and ointment are removed twice daily with cotton or a soft cloth. The hair is washed every other day if the eruption is on the head or neck. Cosmetics such as cream, rouge, powder, or hair oil are prohibited if the head or neck are involved. Lipstick may be used. The patients are asked to refrain from physical exercise which causes excessive perspiration. Male patients are asked not to shave when the beard is involved. Wet boric acid packs (diluted one dram of boric acid to a quart of warm or cool water) are applied to the affected parts fifteen minutes twice daily.

Impetigo of the newborn is apt to become epidemic in nurseries. Strict isolation must be observed, but even then the nursery may have to be closed and thoroughly cleansed and painted before it can be used. Sometimes epidemics are due to carriers, and it may be necessary to change nursing personnel and methods. The lesions are more often bullous and occur in moist flexures. Oil baths must be stopped and daily baths of soap and water used. A shake lotion containing cinnabar or vioform and systemic administration of penicillin is the treatment of choice. Strict cleanliness is of the greatest importance.

Furfuraceous impetigo appears as scaly, superficial patches on the face, generally seen in children in the winter months. Bacitracin or ammoniated mercury ointment usually heals the eruption, but recurrences are common until warm spring days appear.

Impetigo of Bockhart is follicular impetigo and closely related to folliculitis, sycosis vulgaris, and acne necrotica. Remedies mentioned above combined with frequent washing of the scalp often are sufficient to cure. When accompanied by pediculosis capitis and large, suppurating cervical lymph nodes, each component may have to be treated separately.

Folliculitis must be separated from similar eruptions on the scalp where it is called impetigo of Bockhart or acne necrotica and similar pyodermas of the beard called sycosis vulgaris. When the above are eliminated, folliculitis occurs as an occupational dermatitis with secondary pyoderma in "wet workers" (dish washers, bartenders, soda clerks, et cetera), tar, grease, oil, and certain chemical workers as well as secondary to vitamin A deficiency. If the causative factor is removed or treated, the folliculitis will disappear following the use of the usual local applications.

Sycosis vulgaris is a chronic inflammatory disorder involving the hair follicles of the bearded region. Aureomycin used as an ointment for topical application and 250 milligrams given orally four times a day produced miraculous results in several cases in recent weeks. The cases are too few to draw any conclusions regarding the effect of aureomycin on sycosis vulgaris in general.

Furuncles generally result from external infection and reinfection. They are often secondary to other cutaneous diseases such as scabies, pediculosis, eczema and less often to systemic diseases including diabetes, malnutrition, anemias, et cetera. The individual lesion and the skin as a whole must be treated. The skin must be properly cleansed, lubricated, and all known means used to prevent spread. The individual furuncle is immobolized, wet packs applied, antibiotics given systemically, the yellow top gently removed with a scalpel when the lesion fluctuates, and antibiotic ointment applied to the surrounding normal skin as long as drainage persists. Adhesive tape should be religiously avoided. Furuncles of the upper lip, because of venous drainage into the cerebral vessels, and carbuncles constitute a much more serious problem. Here added emphasis must be placed on all points mentioned above, especially larger doses and often multiple types of systemic medication, as well as increased attention to general nutrition, care and nursing.

Hydradenitis suppurativa is essentially a suppurative inflammation involving the sweat apparatus. The eruption is most common in the axillae and less frequent around the genitalia, perineum and gluteal cleft. The eruption often does not respond to any treatment except surgical excision of the entire involved area. Roentgen rays, systemic antibiotics, and sulfonamides have been used with indifferent results. This is one of the deep pyodermas so topical applications are of little or no value.

Ecthyma is a crusted, ulcerated deeper pyoderma which usually follows insect bites, injury, or scratching. The lesions are usually on the extremities of children. Ecthyma often responds to cleanliness and bacitracin ointment, but systemic antibiotics are occasionally necessary.

Vegetating pyoderma can be likened to ecthyma which produces a warty, elevated, exudating, crusted lesion rather than an ulcer. These lesions appear at the same sites as ecthyma for the same reason and may respond to the same treatment. The involution is often hastened by roentgen ray therapy.

Erysipelas responds dramatically to systemic antibiotics (parenteral penicillin) or the sulfonamides as compared to the older treatment of vaccine, wet packs, et cetera. Recurrent attacks generally respond to one of the above drugs.

Gangrenous ulcerating pyoderma usually accompanies chronic ulcerative colitis, but has been known to follow or occur during typhoid fever, malaria, pneumonia and other diseases. Red, inflammatory nodules of various sizes appear, fluctuate, slough, ulcerate, and spread peripherally or heal with scar formation. The lesions appear in crops with each exacerbation of the systemic disease. Treatment is supportive and unsatisfactory.

Pyogenic paronychia and pyonychia are very rare in the author's experience. Most lesions thought to be pyogenic prove to be monilial infections and do not respond favorably to treatment. A simple pyogenic infection about the nail or nails should and generally does respond favorably to local antibiotics and drainage if the pre-existing cause can be removed. This includes proper protection in the form of cotton-lined rubber gloves, hand lotions, elimination of harsh cleansers for patients who do wet work, such as housewives, bartenders, soda clerks, meat cutters, et cetera.

Granuloma pyogenicum usually is a solitary, dark red lesion which appears at the site of injury and bleeds easily when injured. Treatment is to excise a portion or the entire lesion for microscopic examination and cauterize the remainder or base with actual cautery.

Multiple abscesses of infants are comparatively rare and occur in poorly nourished infants in unhygienic surroundings. Lowered cutaneous resistance exists and the abscesses may be started by infection of the sweat glands or rubbing the skin against dirty linen, et cetera. The abscesses may be few or many and appear on all parts of the skin surface. Treatment is directed toward improving nutrition, systemic antibiotics, and strict cleanliness.

Pyodermas secondary to other diseases such as diabetes, scabies, chronic dermatitis, fistula or sinus drainage, discharging ears, sepsis and pyemia, and acne vulgaris must be treated by whatever means necessary, with the realization that the pyoderma will not heal until the primary disease has been controlled or cured.

Dermatitis exfoliativa neonatorum (Ritter's disease) is thought to be a generalized exfoliating pyoderma in infants which involutes spontaneously within a month in about 50 per cent of cases while the other 50 per cent die. Attempts have been made to differentiate Ritter's from Leiner's disease. Leiner thought that the diseases were similar, but stated that Leiner's disease is more chronic and associated with seborrheic eczema of the scalp. The treatment has been supportive and unsuccessful in half the cases.

Eczematoid pyoderma is the eczematoid process or contact dermatitis generally due to local treatment superimposed upon pyoderma. Here the eczematoid process must be treated with soothing, wet applications before attacking the pyoderma.

Chancriform pyoderma is a solitary lesion resembling a chancre accompanied by lymphadenitis of the lymph nodes draining the area. It must be differentiated from a syphilitic chancre and the primary cutaneous complex of tuberculosis. The treatment of choice is antibiotics locally and systematically. If the response is slow, superficial roentgen ray therapy may be of value.

Summary

The pyodermas and their treatments were discussed. In my experience Bacitracin ointment is the topical application and penicillin is the parenteral medication of choice in the treatment of pyodermas.

MELANOMATA AND NEVI

(Continued from Page 461)

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History of Medicine In Minnesota

MEDICINE AND ITS PRACTITIONERS IN OLMSTED COUNTY PRIOR TO 1900

NORA H. GUTHREY
Rochester, Minnesota

(Continued from April issue)

Mrs. J. Brorby settled in Rochester, Minnesota, in the early summer of 1876. The chief knowledge gleaned about this practitioner is contained in the following statement by the Reverend Gerk Gjertsen, Pastor of the Scandinavian Lutheran Church, in the Rochester *Record and Union* of July 7, 1876:

> Read this: Mrs. J. Brorby, midwife and physician, formerly of Madison, Wisconsin, has now located at Rochester and can be consulted in her office at her residence on Prospect Street, one door north of Dr. Galloway. Mrs. Brorby has had fifteen years of experience at one of the large hospitals of Europe and since her arrival in this country her practice has been a career of continuous success. Her charges are low. The poor are treated fair; the English, German and Norwegian languages are spoken. It has been proved that ailments of many years standing, given up as hopeless by other physicians, have been cured by her. I can cordially recommend her to everybody as a conscientious and skillful physician.

By December, 1876, Mrs. Brorby had her office over the Union Drug Store. In that month appeared a note that Mrs. Brorby, seized with a chill while preparing for church, had mistakenly poured and drunk a glass of aqua ammonia, thinking it was wine; it was stated that she took a large amount of cod-liver oil to counteract the ammonia, and that she had a narrow escape. After March 27, 1877, her card did not appear in Rochester newspapers.

Francis Walter Burns (1870-1936), a native of Carrollville, High Forest Township, Olmsted County, was born on September 13, 1870, a son of John Burns and Ellen Buckley Burns, respected citizens of the county. There were four other children: William, Ella (Mrs. John Lawler), Annette (Mrs. A. O. Tew) and Minnie. John Burns' parents came to the county in 1855; one of his brothers, Peter Burns, a substantial member of the district, in 1879 was sent as representative to the state legislature.

"Frank" W. Burns received his preliminary education in the local district schools and in the schools of Rochester. After finishing business training and working for a time as a clerk with the Winona and Southwestern Railroad at Winona, he entered the medical department of the University of Minnesota in October, 1892. Later he transferred to the College of Physicians and Surgeons, in Chicago, from which he was graduated with honor on April 24, 1896; on June 24 he was licensed by examination to practice in the state. In vacations during his final years at medical school and again before entering practice he served as an intern at St. Mary's Hospital, Rochester.

When Dr. Horace H. Witherstine, of Rochester, went to Atlanta in May, 1896, for the meeting of the American Medical Association and to be away several weeks, he invited Dr. Burns to occupy his office and look after his patients, excellent experience for the new physician, who already possessed the good will of the community. Later Dr. Burns had his office over Hargesheimer's Drugstore on Broadway; well occupied in practice, it has been noted that when the autumn elections approached and he was offered the Democratic nomination for county coroner, he refused it. In March, 1897, he moved to Stewartville to enter partnership with Dr. Edwin D. Stoddard, in practice and in the drugstore of Stoddard and Wood. Dr. Stoddard (1850-1937) was in High Forest from 1874 to 1890, in Stewartville from late 1890 into 1903. When Dr. Stoddard retired from practice and removed to California, Dr. Burns continued alone. His fellow physicians in Stewartville were Dr. Charles E. Fawcett, a graduate of 1893, and Dr. Herman R. Russell, a graduate of 1899.

On June 27, 1901, Francis W. Burns was married at Rochester to Mabel Opal, only daughter of Mr. and Mrs. A. K. Knapp, constructive pioneer settlers of High Forest Township, who later lived in Rochester. In December, 1901, Dr. and Mrs. Burns moved into the beautiful new home, "Red Gables," in Stewartville, which for eleven years was their residence and the scene of thir gracious hospitality.

Esteemed for his personal traits, which included an inimitable sense of humor, and respected and valued for his ability as a physician and surgeon, Dr. Burns had a heavy and successful practice. When he was removing with his family to California, in the autumn of 1912, the citizens of Stewartville "tendered him a banquet to express their appreciation for his work in their midst" *(Journal-Lancet,* November, 1912).

Abreast of his profession from the beginning of his career, Dr. Burns made numerous trips for postgraduate study at clinics, hospitals and medical schools, and in California as in Minnesota he was an active member of county, district, state and national medical associations. In California for nearly twenty-four years, first in Los Angeles and afterward in Pomona, he practiced medicine, paying special attention to dermatology. He died on August 28, 1936, survived by his wife and by three daughters. In 1946 Mrs. Burns was living in West Los Angeles; Janet Burns (Mrs. Edmund P.) Stone, in Pomona; Elinor Burns (Mrs. Charles) Gabriel and Jean Burns (Mrs. Stanley) Reel were in Los Angeles.

Arthur Jay Button, born in 1869, was graduated in medicine from the University of Minnesota on June 10, 1897, and on the same day received license No. 779 (R) to practice medicine in the state. He was then a resident of Minneapolis. In the following November he came to Olmsted County looking for a location, which he found in the hamlets of Genoa, New Haven Township, and nearby Douglas, in New Haven and Kalmar Townships. A few months later he removed to Hammond, Wabasha County, but maintained his professional and friendly relations in the community of his first choice and elsewhere in Olmsted County. On May 6, 1898, at a meeting of the Olmsted County Medical Society, in Rochester, Dr. Button was one of five local physicians, three in counties other than Olmsted, elected to membership. He became a member of the state medical society and of the American Medical Association.

Licensed in South Dakota in 1907, Dr. Button practiced medicine in Mobridge until about 1918. When he returned to Minnesota, he practiced (the following dates are approximate) in Hackensack from 1921 to 1925; in

Greenbush from 1927 to 1931; in Pine River between 1934 and 1938; and was in Walker as late as 1942, according to the directory of the American Medical Association.

Harry Paul Chambers (1867-1915), a native of Elm Grove, West Virginia, and a graduate of the University of Virginia and of the Baltimore College of Physicians (1891), has erroneously been considered a physician of Rochester, Minnesota, in the late nineties. Although he likely was in Rochester at some time, he never practiced there, but settled in Florence, Wisconsin, about 1900, where in excellent professional standing he practiced medicine and surgery until his death.

James (sometimes seen "John") **H. Chapman,** millwright, farmer and physician (herb doctor), came to southern Minnesota, in the neighborhood of Plainview, Wabasha County, in 1856, and ten years later to section 22 New Haven Township, Olmsted County. In 1871 he settled with his family in Rochester.

Born early in 1820 at Ontario, New York, James H. Chapman was the son of Rufus and Harriet Chapman, both of whom were natives of Ohio. First married in the East, he lived in or near Meadville, Pennsylvania, where a son, James H. Chapman, Jr., was born in 1854; two years later Mrs. Chapman died, in Wabasha County, Minnesota, leaving two children. The following year Dr. Chapman was married to Sarah E. McCullum, native of McHenry, Illinois, and daughter of Mr. and Mrs. John McCullum, who had come to Wabasha County in 1855. Of this marriage there were eight children. Sarah McCullum Chapman died in Rochester from "gastric" fever on August 26, 1889.

Herbalist though he was, without pretension to standing in the regular medical profession, Dr. Chapman had a considerable following which preferred his ministrations to those of his professional superiors. His great reliance, it is recalled by many senior residents of Rochester, was on lobelia, which earned for him the unlovely sobriquet of "the puke doctor." There were few of the older physicians of the town who did not have recollections of cases, in all of which lobelia figured, on which they had been called: sometimes when the herb doctor had failed to obtain results, and sometimes only to be dismissed in Dr. Chapman's favor. There never was question, however, of Dr. Chapman's sincerity nor of his position as a reputable member of the community.

During his years in Rochester this practitioner commonly treated patients at his home, which after 1880 was on Broadway below Elm Street, and he occasionally took a patient into the home as a lodger while treatment was being carried out. In November, 1888, the *Record and Union* stated that a blind man who had lost his sight from smallpox when he was a small child, was so improving under Dr. Chapman's care that he could distinguish light from dark, and that "in grateful appreciation of Dr. Chapman's services he voluntarily tendered him $50."

Depressed and in poor health after his wife's death, Dr. Chapman died at his home from a cardiac seizure four months later, on December 11, 1889, when he was attending a patient in the house. He was nearly seventy years of age. Of the several surviving children, record has been obtained of one: James H. Chapman, who did outstanding work in Olmsted County and the state as teacher in the public schools, county superintendent, advocate of free text books and originator of summer training schools for teachers. In 1893 he removed from

Minnesota to California; after the death of his half-brother, William H. Chapman, in Rochester in 1899, none of the family was in Olmsted County.

Charles L. Chapple (1869-1927), twenty-sixth appointee, as third assistant physician, on the staff of the Rochester State Hospital, was born in Beldenville, Wisconsin, in 1869. He received his early education at Prescott, Wisconsin, and from the University of Minnesota the degree of bachelor of arts, in 1892, and the degree of doctor of medicine in 1898; in 1898 he was licensed by examination to practice in Minnesota. After serving a year's internship at St. Barnabas Hospital, Minneapolis, and practicing medicine a few months at St. Cloud, Stearns County, it is believed, he began his work in Rochester on August 31, 1899.

On October 8, 1903, Charles L. Chapple was married at Clintonville, Wisconsin, to Grace L. Guernsey, daughter of Mr. and Mrs. George Guernsey of that place. Dr. Chapple had won an enviable place in the esteem of Rochester citizens, medical profession and laity. Mrs. Chapple, an accomplished musician, contributed much to the success of the Euterpean Society, a social group organized for the enjoyment of music, art and literature. Dr. Chapple was a Mason, his wife a Daughter of the American Revolution.

Dr. Chapple has been described by professional associates as a slight, dark-complexioned man, keen, quiet, steady and temperate, of excellent abilities and a high sense of social and moral obligation. He was an active member of the Olmsted Medical Society, its first vice president in 1903. After more than eleven years of service at the state hospital he resigned his position on April 1, 1911, and with his wife and a son Guernsey Phillips Chapple, removed to Tieton, near Yakima, Washington, with the view of becoming fruit rancher as well as physician in that newly irrigated region where there had begun an almost spectacular growth of orchards on the rich sagebrush land. At Tieton, in 1912, a second child, Helen Chapple, was born.

Licensed in Washington in 1912, Dr. Chapple at Tieton carried on the typical role of frontier physician, was member of the local school board and civic officer, and an outstanding worker for horticultural organization. For his orchards that he planted near Tieton he took first honors among some 400 members of the Yakima County Horticultural Union; and in 1919 he took second place for his orchards just west of Yakima. Subsequently he practiced medicine at Yakima, Quinault, and Pacific Beach. He was a member of county and state medical societies and of the American medical Association.

In 1942, some years retired from medical practice, he went to Lacey, near Olympia, to make his home with his son. He died in Lacey in August, 1942, and was buried in Takoma Cemetery, Yakima, beside his wife, whose death had occurred in 1927. In 1945 he was survived by his son, G. Phillips Chapple, of Olympia, instructor in machine shop, automobile and radio at the Olympia High School, and by his daughter, Helen (Mrs. B. W.) Linze, an accomplished pianist, of San Bruno, California; and by five grandchildren, Loren, Celia Ann and Ronald Chapple and Bernard and Mary Linze.

O. Chase, according to Mitchell's *History of the County of Olmsted*, of 1866, was in that year one of the two physicians (the second, Alexander Grant) in the village of High Forest, High Forest Township. Other mention of this practitioner has not been discovered.

Stillman Chase, respected "doctor," presumably a physician, fifty-four years and three months old, died in Pleasant Grove on September 4, 1860, of congestion of the lungs, after an illness of eight days. From Little Valley, New York, he had been in Pleasant Grove about a year. Funeral services were conducted at the Baptist Church.

Dr. Cheever in the summer of 1896 was constructing on the grounds of the Rochester State Hospital "a very commodious and ornamental bird cage in which all the birds of the hospital will be kept during the summer months," and he was contemplating the erection of a new band stand also on the grounds. Neither records nor memories have given a clue to the status of Dr. Cheever.

John Seymour Clark, member of the regular profession, late of New York, came to Rochester, Minnesota, as physician, surgeon and druggist in September, 1881. He had purchased the stock of drugs and medicines of Pierce Brothers and had store and office in the new building owned by Dr. Edwin C. Cross on Broadway. It seems probable that Dr. Clark was more druggist than practitioner. Evidence has not appeared that he was in Rochester after 1889.

Ida Clarke, born in Ohio in 1853, received the degree of doctor of medicine from the Woman's Medical College of Pennsylvania, in Philadelphia, in 1878. After three years of medical practice she came to Rochester, Minnesota, from Lisbon, Ohio, in September, 1881, to enter partnership with Dr. Mary Jackson Whitney, who had been in Rochester since January, 1880. The two physicians specialized in obstetrics and the diseases of women and children. After Dr. Whitney removed to Minneapolis early in 1882, Dr. Clarke practiced alone as physician and surgeon. From time to time she changed office location on Broadway, finally moving into especially equipped rooms over Damon's jewelry store.

In Rochester newspapers between 1881 and 1889 Dr. Clarke often was mentioned: when she had performed surgical operations, assisted by a local physician, or when she had acted as assistant, usually to Drs. W. W. Mayo and W. J. Mayo in performing ovariotomy or in carrying out other procedure; on one occasion she and Dr. F. L. Beecher, a dentist, helped the senior Dr. Mayo in an operation on the left upper jaw of a child at Potsdam.

Dr. Clarke possessed the esteem and confidence of profession and laity alike, and made many personal friends among the conservative residents of Rochester. After she had returned to her old home in Youngstown, Ohio, in May, 1889, to make her home with her widowed mother, she often returned on visits to Rochester and Minneapolis.

In Youngstown Dr. Clarke practiced medicine for thirty-two years. She was a member of representative medical societies, county and state, and of the American Medical Association. Her name appeared in the official medical directory of the Association for the last time in 1921.

Edward M. Clay (1866-1929), a native of Oronoco, Olmsted County, was born on March 2, 1866, a son of Mark W. Clay and Joanna Stoddard Clay.

Mark W. Clay, pioneer settler in Oronoco Township, was born at Hooksett, New Hampshire, on March 31, 1835, one of the twelve children of Walter Clay and Elizabeth Sanborn Clay, both of whom were natives of the state. In 1855 Mark Clay, in search of health, came to Winona, Minnesota, and after a few weeks to Oronoco, where for the ensuing twenty-nine years he was a leading citizen: merchant (for a time in partnership with his brother Thomas); sometime publisher of the *Oronoco Journal,* an advertising enterprise; postmaster, town officer, and representative member of the Independent Order of Odd Fellows. At the beginning of the Civil War he organized a company of soldiers, of which he was chosen captain, which served as Company K, Third Regiment of Minnesota Volunteer Infantry. He was married on March 1, 1857, to Joanna P. Stoddard, born in 1832, daughter of Thomas and Clara Stoddard of Scituate, Massachusetts; at the time of her marriage Joanna Stoddard was living at the home of her stepfather, Lewis Wilson of Oronoco Township. Mrs. Clay died at Oronoco in March, 1884, leaving seven children: Ida Augusta, Maggie W., Edward M., Harvey I., Wellington S., Zelda May and Charles F. In that year Captain Clay with the children removed to Hutchinson, McLeod County, Minnesota, where he died in 1901.

Edward M. Clay obtained his early education in the schools of Oronoco, and in the eighties engaged in various pursuits, chief of which was the editing of the *Renville Weekly* for C. M. Laramie, editor of the *Bird Island Union.* In 1889 he entered the Minneapolis College of Physicians and Surgeons, from which, president of the senior class, he was graduated in April, 1893. Renville, in Renville County, was the scene of his first medical practice. He was married in 1893 to Belle C. Benson of that place.

Although in 1895 Dr. Clay considered returning to Olmsted County, it was not until late in 1898 that he left Renville for Oronoco, where he practiced successfully and was active in professional affairs for nearly three years. Early in this period he became a member of the Olmsted County Medical Society, the Southern Minnesota Medical Association, the Minnesota State Medical Society and the American Medical Association.

In June, 1901, Dr. Clay returned to Renville, where he remained twenty-four years. During his long residence in that city, dating from 1893, as noted, he was a member of commercial clubs, alderman for several terms, a member of the local board of health, county coroner for twelve years, and surgeon for the Chicago, Milwaukee and St. Paul Railroad for twenty years. He was a charter member of the Camp Release Medical Association. Dr. Clay was a Republican and a member of fraternal organizations, among them the Masonic Lodge, Independent Order of Odd Fellows, Ancient Order of United Workmen, and Modern Woodmen of America. His recreations were hunting and fishing.

Early in 1925 Dr. Edward M. Clay removed from Renville to Hutchinson, where for two years he continued his civic and professional work. He died suddenly on November 4, 1927, when en route to Maynard to attend the funeral of Dr. Reuben Zimback; as Dr. Clay was leaving the train at Olivia to join Dr. G. H. Mesker for the remainder of the trip, he fell dead. The cause of death was believed to be cardiac disease, brought on by overwork a few weeks earlier during an epidemic of influenza. Dr. Clay was survived by his wife, a daughter, Florence, two brothers, Harvey I. Clay and Wellington S. Clay, both of Hutchinson, and one sister, Zelda M. Clay Chase, of Saratoga, California. Belle Benson Clay died in May, 1942, and was buried beside her husband at Hutchinson. In 1945 Florence Clay (Mrs. John) Davey, a registered nurse, was living in Toledo, Ohio.

Dr. Clay has been described by one who knew him well as a tall, powerfully built man, outspoken, honorable, loyal, generous to the poor, an uncompromising enemy to sham and deceit. His patients trusted him. He was an old time doctor of insight and sympathy, well grounded in fundamentals of human nature. "He did more to cure the ordinary run of human ailments than he could have done had he possessed merely technical training."

(To be continued in the June issue)

President's Letter

A CORDIAL INVITATION

Soon the ninety-seventh annual convention of the Minnesota State Medical Association will be in session. Will you be there?

If you won't, here's what you'll be missing: scientific sessions on heart surgery, joint diseases, intravenous treatment, urinary tract infections—all presented by outstanding physicians in these fields; lectures on "The Diet and Cardiovascular Disease," "The Roentgen Diagnosis of Silicosis," "The Common Hemorrhagic Diseases of Childhood," "Dystocia," and "Psychosomatic Medicine"; round table discussions on a wide range of subjects, carefully selected by the Committee on Scientific Assembly.

This year, an entire day is being devoted to the consideration of atomic energy and its effects, both beneficial and destructive. In the morning, there will be discussions of the medical applications of radioactive isotopes and, in the afternoon, the public will be invited to hear about atomic energy in war and peace, with experts speaking on the physics of atomic energy, civilian defense, and medical aspects of atomic explosion.

If you aren't there, you'll miss the special meeting of your group—specialty, fraternal or social. For, as always, there will be: Sectional programs presented by the Minnesota Chapter of the American College of Chest Physicians, the American College of Allergists, the Minnesota Academy of Ophthalmology and Otolaryngology and the Twin City Orthopedic Association; as well as a full program of luncheons and dinners arranged by the American Medical Women's Association, the Minnesota Society of Clinical Pathologists, the Minneapolis General Hospital Surgical Residents Society, the Minnesota Medical Foundation and Minnesota Medical Alumni, Nu Sigma Nu Alumni Association, the Minnesota Radiological Society, the Minnesota Chapter of the American Academy of General Practice, the Medical Veterans Society of Minnesota, the Northwestern Pediatric Society and former St. Mary's interns.

You'll miss also the annual banquet and open house, with special entertainment arranged by the St. Louis County Medical Society's Committee on Local Arrangements.

Sunday, you'll miss the golf tournament and the trap-shooting contest, with its three events. And every day of the convention there will be lake fishing expeditions.

Think over these opportunities for gaining scientific information, meeting with your colleagues, joining in the social and sports events and viewing the splendid scientific and commercial exhibits. Remember, the physicians of St. Louis County have done their utmost to make your stay pleasant, giving special attention to housing and entertainment.

Now, mark **JUNE 12, 13 and 14** on your calendar and plan to be with us in Duluth.

F. J. Elias.

President, Minnesota State Medical Association

Editorial

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

THE STATE MEETING

THE ninety-seventh annual meeting of the Minnesota State Medical Association will be held in Duluth, June 12, 13, 14, 1950. The early summer date of the meeting will assure plenty of accommodations for those who plan to attend. The Open House planned for Monday evening and the annual banquet to be held Tuesday evening are only part of the numerous social events planned by the Duluth members and their wives. President Laurence M. Gould of Carleton College will address the banqueters.

A glance at the program will reveal that such new developments in medicine and surgery as the diagnosis of heart lesions amenable to surgery and their surgical treatment; cortisone and ACTH in rheumatoid arthritis; newer solutions used in intravenous therapy; medical applications of radioactive isotopes; psychosomatic medicine; and atomic energy, all appear on the program. Question-and-answer periods each morning and afternoon should prove a most valuable means for stimulating interest.

The meeting this year in Duluth affords again an opportunity to combine the attendance at the meeting of you and your wife with a summer outing in the northern part of our beautiful state. This great opportunity does not come very often and advantage should be taken of this year's meeting in Duluth.

MEDICAL EDITORS' CONFERENCE

ONE of the most important innovations in the public relations activities of the Minnesota State Medical Association is the meeting of newspaper editors and physicians sponsored by the Committee on Public Health Education of our Association. The first meeting was held in Minneapolis on April 8, 1949, for the purpose of securing a better understanding between the profession and newspaper editors. The press had frequently expressed the opinion that the profession expects the press to maintain the entire burden of indirect publicity from the profession to the public. Physicians until recently have not been clear in their own minds as to what advertising, if any, on the part of the profession, as individuals or a medical society, is ethical.

At the annual meeting of the Minnesota State Medical Association held in Saint Paul in May, 1949, a resolution approved by the Council of the Association was passed by the House of Delegates clarifying the subject. This resolution stated that, with the approval of a local society, a member may ethically place a professional card stating only his name, address, telephone number and office hours and his specialty if he is so recognized in his community; likewise, a component medical society may sponsor special greetings, messages or announcements in the name of the component society or the members thereof. This action aroused considerable adverse criticism on the part of some opponents of the profession and proponents of state medicine. The newspapers were accused of selling themselves to the medical profession, and the profession was accused of unethical practice. Both accusations, of course, were absurd. As long as the local profession is agreed as to the procedure of the insertion of a newspaper advertisement containing the limited data mentioned, there is no breach of ethics any more than in the case of an insertion of such information in a classified telephone directory. Furthermore, there is nothing unethical about physicians or medical societies expressing their ideas on political or economic affairs by paid insertions in the form of advertisements, either with the names of physicians or the county medical society attached.

There are, of course, legal restrictions as to what political activities organizations like medical societies can undertake. While a physician has the privilege and, in fact, the duty as a citizen to take part in politics and may actively support a candidate, a medical society may not legally contribute to or expend funds in support of or in opposition to candidates for office or sponsor any form of advertising material for a candidate. Individuals forming political committees must, further, not make use of any official position or office which they may hold in any organization to favor candidates. When it comes to supporting a candidate for Federal office, a physician has the same rights as other citizens to contribute funds personally up to $5,000 to or on behalf of such a candidate.

The first meeting between the newspaper editors of the state and the physicians having proved such a success, a second meeting was held again this year on April 21 at the Saint Paul Hotel. It was even better attended than last year's meeting and was called primarily to consider ways and means for county societies to express themselves in local newspapers. Physicians throughout the state have felt a pressing need of expressing themselves on medical subjects, most important of which is so-called compulsory health insurance. They have felt that the local newspaper is the logical medium for such an expression on a grass roots level. The Public Health Education Committee of the State Association has come to the assistance of the county medical societies by having prepared a series of newspaper advertisements written by an advertising specialist. Copies of these insertions have been sent to the county societies and to the newspapers of the state. It was explained at the meeting that the next step is for the county medical society to arrange for the publication at its own expense of as much of this advertising material as it desires. The venture is to be financed by the members of the local societies as their special contribution to the preservation of free medical practice. Private medical practice seems well worth this small additional investment. As was brought out at the meeting, these insertions signed by the local physicians who are known to the readers will carry much more weight than the name of the society only. Doubtless, too, a few such advertisements in a large number of newspapers will be more effective than a larger number in fewer papers.

It was gratifying to witness the evidence of interest on the part of the newspaper editors of the state in conferring with the physicians. Newspaper men long have felt that the medical profession has been rather stuffy in its relations with the newspapers lest physicians lay themselves open to criticism from their confrères on the basis of unethical conduct. Physicians have long avoided interviews with newspaper reporters, even on matters that the latter have felt have legitimate news value and about which only the physician is informed. Doubtless, the newspaper editors feel that these two meetings with the profession indicate a recognition of the functions and value of the newspaper as a medium of expression on the part of the profession to the public. The acquiring of additional advertising seemed to play a secondary roll, as far as the editors were concerned.

Senator John L. McClellan of Arkansas spoke to the editors and physicians following a dinner in the evening. Though a Democrat, he sees the direction his party, with the assistance of some Republicans, is leading our country. Facing larger deficits this year than the 5.5 billion deficit of 1949 and with no hope of balancing the budget in 1951, there are those in Washington who are seriously advocating conferring dictatorial powers on the executive and plunging the country into further debt of astronomical proportions. Those who heard this real statesman, one of the few whom Washington can boast, could not fail to sense the need for all who believe in maintaining a free and solvent country to join forces.

STREPTOMYCIN IN TUBERCULOSIS

THE USE of streptomycin in tuberculosis has been given extensive trial during the past two and a half years since its tuberculostatic effect was definitely established. Of particular value in determining the status of streptomycin therapy have been the co-operative reports made by the Veterans Administration, the Army and Navy, to the Council on Pharmacy and Chemistry. The third report* largely confirms the previous two and justifies certain conclusions.

Streptomycin cannot be counted on alone to cure tuberculosis. Even in draining tuberculosis sinuses and in involvement of the genito-urinary tract, in which conditions it is specially efficacious, an appreciable number of relapses occur. In 416 patients with pulmonary tuberculosis observed two and a half years, who had received streptomycin, there was a mortality of 21 per cent. During this period, 67 per cent of some sixty-six patients with tuberculous meningitis, so treated, have died.

Streptomycin is only an adjunct in the treatment of tuberculosis. It should not be given to ambulant patients as is so often done for a few weeks trial. All the other methods of treatment, such as bed rest and surgery where indicated, should be used.

While the use of streptomycin has resulted in an increase in the percentage of cures, its use has its drawbacks. It does not have a favorable effect in the presence of much necrosis; it requires daily intramuscular injections; it produces toxic side actions such as vertigo and deafness; and it produces streptomycin-resistant bacilli.

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*Council on Pharmacy and Chemistry: Current status of the chemotherapy of tuberculosis in man. J.A.M.A., 142:650, (March 4) 1950.

The extensive use of streptomycin, however, has established the fact that the dosage of 1 gram a day is nearly as effective as 2 grams daily and does not produce nearly as high a percentage of toxic manifestations as the larger dose; that a single intramuscular injection daily is just as efficacious as divided doses; that the development of streptomycin-resistance depends rather on the long period of treatment than on the size of the dose.

The value of the administration of streptomycin previous to and following pulmonary excisions seems definitely established, although its routine use in thoracoplasty was not thought advisable as there was only a slight reduction in the incidence of spreads in the few instances in which it was tried.

The early promise that dihydrostreptomycin might replace streptomycin has not materialized. Although less toxic, the former is less effective in 1-gram dosage (the established dose at present) and when given in 2-gram doses may produce a loss of hearing during or after administration, a condition rarely observed with streptomycin.

Another drug used rather extensively in Sweden in the treatment of tuberculosis in para-aminosalicylic acid. Its use in this country has been largely in the treatment of patients in whom the tubercle bacillus has become streptomycin-resistant. In these patients, although the comparison may not be fair, the results from the use of para-aminosalicylic acid have not warranted extensive trial. From a limited trial, there is some indication that there is less development of resistance to streptomycin and that the efficacy of streptomycin may be enhanced by the simultaneous administration of para-aminosalicylic acid orally in conjunction with streptomycin.

MATERNAL MORTALITY STUDY IN MINNESOTA

ON the recommendation of the Maternal Health Committee the Council of the Minnesota State Medical Association has approved a state-wide survey of maternal mortality in the state for the year 1950. The study will be made in co-operation with the Minnesota Department of Health. It will consist of a field investigation by a trained obstetrician as soon as a maternal death is reported and an analysis of the findings to determine the causes of death by the Maternal Health Committee.

The value of such a study was demonstrated in the previous study in 1942 as well as by studies being made in other states. Minnesota has made great progress in reducing its maternal deaths to 6/10,000 live births in 1947, the lowest in the United States. It was 7/10,000 in 1949, but there is still room for improvement as shown by the fact that Oregon reduced its rate to a new national low of 4/10,000 in 1948.

The Council urges that all physicians and hospitals co-operate in this study. All maternal deaths should be promptly reported by mail or telephone, collect (GLadstone 5973, Minneapolis), to the Division of Maternal and Child Health of the State Health Department in addition to the usual report of the death certificate to the Division of Vital Statistics. This will assist the committee in making a prompt investigation. The committee urges that an autopsy be obtained in each maternal death.

SURVEY OF PHYSICIANS' INCOMES

The AMA Bureau of Medical Economic Research is co-operating with the Office of Business Economics of the U. S. Department of Commerce in sending out questionnaires regarding professional incomes to over 100,000 members of the profession. The purpose of the inquiry is to obtain accurate estimates of the income of the profession for determining the cost of medical care to the American people.

The survey will cover 62.5 per cent of the 200,000 physicians whose names are contained in punch card files of the AMA. A short form requesting income data for 1949 will be sent to every other of the 200,000 names. Of the remaining 100,000 names, every fourth will be selected; 10,000 short forms and 15,000 long forms will be sent to these individuals.

Physicians need have no concern lest the replies may be used by the Bureau of Internal Revenue. The Bureau has no access to income reports, and for this reason the present survey is being made. Your co-operation in returning the forms promptly and accurately filled out is earnestly requested. Results will be published by the Department of Commerce next fall in its monthly publication, *Survey of Current Business.*

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

THE WELFARE STATE—WHAT IS IT?

Many Americans have spoken up against the socialistic trend in government today. Representatives of these views from all phases of American life include an industrialist, an editor, a professor, an educator and politician, and a reporter. From their words come greatly-needed definitions and explanations of traditional American philosophies—very welcome when such terms have been so mistreated and misunderstood of late.

Industry Editor Calls a Spade a Spade

Making the most of frequently-used and misused words in the daily news, Art Hood, editor of the American Lumberman and Building Products *Merchandiser,* declares in a recent issue of *Systems Magazine,* that the inner battle of Semantics in the cold war has allowed socialists and communists to twist the meanings of revered American words and fit them into slogans.

Defining the welfare state, he says:

"Within the cold war is an inner battle of Semantics. *Democracy, Freedom* and *Liberty* have been appropriated as slogans by socialists and communists.

"And now they've done it again! We have been trapped into calling a leftish government a 'Welfare State.'

"Every time the Politburo hears where one of us has damned the Welfare State they must get a belly laugh.

"It would be laughable if it were not so tragic.

"Socialism is not a 'Welfare State.' . . .

"And communism is not a 'Welfare State.' . . .

"Russia is a *slave* state. Let's call it that!

"England is a *regimented* state. Let's call it that!

"The only true *welfare state* is one with our kind of a Constitution and Bill of Rights and with a private enterprise economy.

"Let's be realists. *We can't win elections and block socialism by condemning welfare and security.*

"We *can* elect Representatives and Senators who will block further socialization of our political economy, IF every one of us will hammer home these truths:

"1. That welfare and security are nothing but words in Russia and England—while they are *facts* in America.

"2. That the boasted equality of the socialists and communists is one of common destitution.

"3. That slavery to the state is the inevitable result of socialism and communism.

"4. That welfare and security by any government is money taken from the people and given back, less a 40 to 60 per cent service fee.

"5. That those who want welfare and security in America can provide it cheaper themselves than by paying taxes to provide it.

"6. That the Constitution of the United States and our Bill of Rights provide the highest degree of welfare and security ever known in the history of man."

Statism More Than a Scare Word

Dorothy Thompson has a respect for correctly used words, also. She has shown understandable concern over President Truman's recent statement that statism is merely a scare word. Quoted in the Kansas City *Times,* she gives her views on the welfare state and statism:

"President Truman professes not to know the meaning of 'statism,' by which Senator John Foster Dulles recently defined the tendencies of the Truman administration. The President said he had looked the word up in two or three dictionaries and that they were in disagreement. 'It's simply a scare word,' Mr. Truman concluded.

"There are many words in common use and of generally accepted meaning, which have not found their way into dictionaries. . . . The dictionary is maintaining a decorous civilization which has not caught up with what Winston Churchill described as 'this grim, ferocious epoch.' Its definition of 'atomization' is 'to reduce to atoms, pulverize, spray.' Future editions will have to add 'vaporization of inorganic and organic matter, including human beings, by atom bombs.' . . .

Rubber-Stamp Citizens

"But the President knew perfectly well what he (Senator Dulles) meant, and so do we all, without reference to any dictionary. The Senator meant by 'statism' the tendency of the state to encroach into all the fields hitherto reserved to the individual and society; to absorb more and more of the citizen's earnings; exercise increasing control over his life and habits; and reduce him to becoming a rubber stamp of the state-bureaucratic apparatus."

Miss Thompson expands her definition of statism to include the meaning given by Mussolini:

> "Everything in the state; nothing outside the state."
>
> "Thus," she declared, "statism is total state power, which can be achieved gradually, as well as by revolution. Its chief psychological weapon is to identify the state with the people, as though they were the same, which, of course, they are not."

Continuing, Miss Thompson avers:

> "When society gives powers to the state it is weakened in the same proportion. And that the state is becoming everywhere stronger and the people weaker is visible to the naked eye, even if not visible in the dictionary."

The debate about which is best, power in the state or in the people, concerned the writers of the Constitution and the founders of the first United States government. Miss Thompson, in her forthright manner, makes this point in conclusion:

> "In terms of their own era, Hamilton was a statist, and Jefferson an anti-statist. It is certain, I think, that if those two great minds were meditating the same question today, in a highly organized industrial society, which at that time did not exist, they would have other policies.
>
> "But they would not avoid the issue by a wise crack, and, neither should the President.
>
> "For one way by which the state shows contempt for the people, is to reduce all issues to slogans and wisecracks."

Stassen Scores Again in Discussion on Socialism

Speaking on the Town Meeting of the Air recently, Harold Stassen made a strong case against the trends of socialistic government. Discussing with Professor Arthur M. Schlesinger of Harvard, the question: "How Will the British Elections Affect the United States?", Stassen pointedly remarked:

> "I've heard many interpretations of the results, but this is the first time I've heard it interpreted as a 'stunning victory' (quoting Professor Schlesinger) for the socialist state. I think it was a stunning victory in which the victors were stunned. In fact, the *London Times* . . . said that any last-ditch attempt to interpret the meager Labor new majority as a mandate to go on as before would be foolish and futile. . . ."

A Distinction Is Necessary

Mr. Schlesinger then posed this question to Stassen:

> "I do believe that it's essential for us to have in our own minds the distinction between the welfare state and socialism. I would ask the Governor, who said in his speech that the compulsory health program and the Brannan Plan are both copies from the British Labor program . . . if there is so little difference between the Fair Deal program and the program on which the Tories achieved their gains in this last election, what does he conclude from that as to the future of the welfare state?"

Out of Professor Schlesinger's rather drawn-out and confused question, Mr. Stassen scores his most important point of the evening:

> "Well, that's a very common misinterpretation of the Conservative position. It's not true that they said, 'Me, too.' I quote specifically from their (the conservatives') platform, *Right Road for Britain:* 'We shall bring nationalization to a full stop here and now. Therefore, we shall save all those industries such as cement, sugar, meat distribution, chemicals, water, and insurance which are now under threat by the Socialists. We shall repeal the Iron and Steel Act, before it can come into force. The nationalization of tramways will be halted. Wherever possible, those already nationalized will be offered to their former owners, whether private or municipal. We shall also be prepared to sell back to free enterprise those sections of the road haulage industry which have been nationalized.'
>
> "In other words, clearly the Conservative position was against socialism.
>
> "Now the effort of the Socialists is constantly to interpret an opposition to socialism as being a position against social insurance, which is an entirely different thing.
>
> "The whole development of unemployment compensation, of old-age assistance, has been advanced by both parties in England, as it has been advanced by both parties in the United States.
>
> "What we are against—what the Conservative in England is against—is taking over, in a great centralized government, the actual operation, ownership, management of the great industries of a country, because that's the way to lower the standard and defeat the welfare of the people."

Confusion in Terms Is Answered

During the question and answer period, a man asked Stassen this question:

> "Professor Schlesinger seems to confuse support of human welfare with support of a welfare state. I wonder if the Governor would care to comment."

Stassen realized the man's understanding of word-meaning and his concern for clarity, and went on to expand the statement:

> "I think that your question is well put, in that all parties in both countries want to advance the welfare of the people. The question is how is it done? The people

of England are finding that their welfare is not improved, and they are suffering from a lower standard of living than are the peoples on the Continent who've turned away from socialism.

"The whole basic question is why do we have the best standard of living in the world in America? It's because of our tradition of individual freedom—freedom economic, social, political, and religious. We say let's carefully advance the welfare of the people while holding fast to those individual freedoms."

BRITAIN HAS NEW PROBLEM PLUS MORE EXPENSE

Britain's latest problem, ironic as it seems, is one of large stocks of food—enough, in fact, to permit increases in the people's rations. But, says a *New York Times* dispatch quoted in the *Wall Street Journal,* "this pleasant development puts the government in a 'peculiar situation'."

In Britain, all foods are supported by heavy government subsidies. This makes it quite necessary for Sir Stafford Cripps, the budget manager, to consider seriously if the government can afford to let the nation eat more. He says the treasury can't permit that.

The *Wall Street Journal* suggests this alternative:

> "The government could just put the extra food in the open market and let folks decide for themselves whether they wanted to pay more to eat more. That's a course the government is 'very reluctant to take'; things like that must be planned, not left to the people."

The editorial goes on to explain that the subsidy program was begun in the first place to help the people get food during a period of shortages. Going on, it comments:

> "Now the shortages of most foods are ended. Yet the government cannot let the people have a better diet because of that self-same rationing and subsidy program.
>
> "So because the government is so solicitous of the people's welfare the people can't have any more to eat.
>
> "Have you ever noticed how planners do wonderfully well at planning austerity and find nothing so disconcerting as the least hint of abundance?"

It May Be Strategy

Of course, this depriving the British people of what they actually take part in producing, whether directly or indirectly through food production or buying foods, may prove to be clever socialist strategy. This is explained by Stephen C. Noland, of the *Indianapolis News,* writing from England before the election:

> "A good example of the strategy of the British Labor party leaders in promoting their Socialistic program is the use of the food rationing system to win support for the steel nationalization project. . . . The steel worker and his wife . . . are getting a poor food break compared with the miner and his wife. . . . This is the grievance that the Labor party politicians wanted. It is in line with their policy of consistently creating small grievances and then offering Socialism as the way to correct the evil which angers the people."

Healing, Also, Too Expensive?

The *London Daily Mail* furnishes a quote from a doctor which brings home all too clearly the inherent dangers in a socialist control-minded health system. It speaks for itself:

> "Lord Horder, one of the King's doctors, accused the labor government today of putting undue controls on the medical profession. Great Britain's socialized medicine program, he said, recently posted a notice in one hospital reading, 'Operating theatre will not be used except between the hours of 9:00 a.m. and 5:30 p.m.' Another example of government control, he said, was an order to hospitals saying, 'Use of penicillin in this hospital must be cut down. It is too expensive.' "

Prison Is Paralleled with Domestic Security

If government security is carried to its utmost point, things may get to the stage where everyone in this country is guaranteed his food, housing, clothing and, subservience. Such security is so like that found in a prison, that it has caused Harvey S. Firestone, Jr., quoted in the Harding College *Letter,* to remark:

> "Nobody in this world is more secure than a man in a penitentiary. He is fed, clothed and housed. But he is not free to go and come as he pleases. He is watched, guarded and disciplined. There are millions of people in other lands who have that same kind of security. But we Americans have always believed that the only real security lies in liberty and opportunity."

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

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Julian F. DuBois, M.D., Secretary

MINNEAPOLIS MAN FINED $1,000 FOR VIOLATION OF FEDERAL FOOD, DRUG AND COSMETIC ACT

Re. United States of America vs. Lafayette M. Gray, an individual trading as L. M. Gray and Powdr-X-Company.

On March 22, 1950, L. M. Gray, seventy-three years of age, 5025 Queen Avenue South, Minneapolis, was sentenced by the Hon. Gunnar H. Nordbye, Judge of the United States District Court, to pay a fine of $1,000 following Gray's entering a plea of nolo contendere to two counts in an information charging Gray with violating the Federal Food, Drug and Cosmetic Act. Gray paid the fine.

Gray had been convicted by a jury in the same Court on March 27, 1948, of introducing in interstate commerce at Minneapolis, a number of packages containing a drug called Powder-X, the Government charging that a letter accompanied the shipment, which letter contained the following statement: "In fact it is an ointment that is splendid for almost any infection, abrasions, or ulcers." It was further alleged that the drug was misbranded in that the above statement was false and misleading because the drug is not efficacious in cure, mitigation and treatment of infections, abrasions or ulcers. Following his conviction in 1948, Gray appealed to the United States Circuit Court of Appeals, which Court reversed the conviction because of errors in the form of verdict used and remanded the case for a new trial.

The investigation was conducted by representatives of the Food, Drug and Cosmetics Division of the Federal Security Agency at Washington and Minneapolis. The trial was conducted by Clifford F. Hansen, Assistant United States Attorney of Saint Paul. Mr. Hansen was assisted by legal counsel representing the Department of Justice and the Federal Security Agency.

MINNEAPOLIS WOMAN ORDERED TO SERVE ONE YEAR FOR MANSLAUGHTER FOLLOWING CRIMINAL ABORTION

Re. State of Minnesota vs. Rose Vivian Baldwin

On April 21, 1950, Rose Vivian Baldwin, thirty-five years of age, 825 Chicago Avenue, Minneapolis, was sentenced by the Hon. Harold N. Rogers, Judge of the District Court to a term of not less than five, nor more than twenty years in the Women's Reformatory at Shakopee, Minnesota. Mrs. Baldwin had entered a plea of guilty on March 24, 1950, to an information charging her with the crime of manslaughter in the first degree, following a criminal abortion. Judge Rogers, after hearing from legal counsel for the defendant and the Minnesota State Board of Medical Examiners, stayed the sentence for five years but ordered the defendant to serve one year in the Minneapolis Women's Detention Home.

Mrs. Baldwin was arrested on March 2, 1950, when it was first learned that the patient, a twenty-four-year-old niece of the defendant, was in critical condition at Minneapolis General Hospital. The investigation by the Minneapolis Police Department and a representative of the Minnesota State Board of Medical Examiners, disclosed that an abortion had been performed upon the patient on January 30, 1950, by the defendant by means of a catheter, for which the defendant was paid $20.00. The patient was hospitalized on February 5, 1950, but the matter was not called to the attention of the Minneapolis Police Department until March 2. At that time it was too late to take a dying statement from the patient because of the patient's condition. The patient died on March 7, 1950. Sufficient evidence was obtained to warrant the issuance of a criminal complaint and the subsequent prosecution of the defendant.

In sentencing the defendant, who has no medical training of any kind, Judge Rogers told her that she was responsible for the death of her niece and that it would be a serious mistake for the defendant to go entirely free of any punishment. A plea for leniency was made for the defendant on the grounds that she had never performed any other abortions except on herself. However, the defendant admitted that she had previously been investigated by the Minneapolis Police Department in 1949, for accepting $100 to perform an abortion. That abortion was not performed, and the $100 was returned to the patient.

SYPHILITIC CARDIAC DEATHS

(Continued from Page 440)

in which death was due to the narrowing of the coronary orifices, except where there was an associated valvular deformity, showed a minimal amount of hypertrophy. This fact does not support the theory that coronary insufficiency, in general, is a causal factor in cardiac hypertrophy. Spirochetes were not found.

The findings in the coronary arteries not including the orifices do not show stigmata of syphilis. There is nothing in this analysis to suggest that syphilis is a factor in the etiology of coronary sclerosis. The sclerosis in the arteries does not appear to be increased in cases of syphilitic heart disease.

Some useful clinical applications may be drawn from the analysis of these 422 cases of syphilitic hearts. The hearts in cases of aortic insufficiency have the greatest degree of hypertrophy. Infarction with a resulting friction rub is rare in syphilitic hearts. The aortic valve is the only valve involved. The valvular deformity causes insufficiency but never stenosis. An anatomic basis for angina and sudden death due to a narrowing of the coronary orifices is a common finding especially in Type 2 where death resulted from coronary insufficiency. It is necessary to differentiate syphilitic heart disease from coronary sclerosis and rheumatic aortic stenosis. Pericarditis either from infection or as a result of myocardial infarction is so rare that it hardly needs to be considered in a diagnosis of syphilitic heart disease.

References

1. Bell, E. T.: Frequency with which syphilitic lesions are encountered in post-mortem examinations. Arch. Path., 26: 839, 1938.
2. Gürich: Ueber die syphilitischen Organveränderungen die unter dem Sectionsmaterial der Jahre 1914-1924 angetroffen wurden. Münch. med. Wchnschr., 72:980, 1925.
3. Reid, W. D.: Cardiovascular syphilis. M. Clin. North America, 5:1319, 1921.
4. Saphir, O.: Syphilitic myocarditis. Arch. Path., 13:266, 1932.
5. Symmers, D.: Anatomical lesions in late acquired syphilis. J.A.M.A., 66:1457, 1916.

MINNESOTA STATE MEDICAL ASSOCIATION

Ninety-Seventh Annual Meeting

Duluth Armory, Duluth, Minnesota

June 12, 13, 14, 1950

ANNOUNCEMENTS

Presiding officers at each session have been instructed by the Committee on Scientific Assembly to show a blue light on the speakers' rostrum two minutes before the end of each speaker's program time. A red light will show when his time is up.

Register and Secure Your Badge at the Registration desk at the Duluth Armory at 8:00 A.M. Admittance will be by badge only. Arrangements have been made with the hospitals to admit interns and key hospital personnel as guests *if previously certified.* Out-of-state physicians can secure guest badges by presenting their membership cards from their local county and state medical societies.

Telephone Service: All physicians attending the Annual Meeting are reminded to tell their home and office secretary how they can be reached during their attendance in Duluth. Special incoming lines have been installed at the Armory Registration desk. All local and long distance calls will be handled promptly if they are directed to the Minnesota State Medical Association at the Duluth Armory, *Hemlock 8733.*

Bring Your Membership Card: There will be no registration fee for those who present a membership card or receipt or other evidence from their county society or the state association or the American Medical Association, nor for members of associated professions including dentists, pharmacists, interns, nurses, hospital personnel, teachers or social welfare workers who present invitations or other identification.

Badges: You are requested to wear your badge while you are on the convention floor. This is important and will greatly assist us to eliminate undesirable persons such as cranks and pickpockets who so frequently try to take advantage of meetings of this character.

Parking: Good parking space is available next to the Armory.

Visit the Exhibits: In keeping with established custom, forty-five minute recess periods have been provided each day, during which time those attending the Annual Meeting are urged to visit the scientific and technical exhibits. The large exhibit of technical displays is interesting and educational. Stop and show your appreciation of the exhibitors' support in helping to make the 1950 MSMA Convention successful.

Round Table Luncheons: A series of twenty-one Round Table Discussion Luncheons have been arranged for this meeting. One luncheon is scheduled for Monday; ten will be held on Tuesday and ten on Wednesday. Tickets may be purchased in advance for these luncheons, all of which are held at 12:15 P.M. at either the Hotel Duluth or Hotel Spalding. Attendance at each luncheon is limited; late-comers are accommodated according to their choice if limits have not already been reached. Tickets $1.75, tips included.

Medal: The Southern Minnesota Medical Association will again award a medal to the individual physician presenting the outstanding scientific exhibit. The award will be made at the banquet Tuesday evening, June 13, at Hotel Duluth.

Fifty Club: Members who this year will have completed fifty years of practice in Minnesota will be honored by election to Minnesota's "Fifty Club." Candidates will be honor guests at the Ninety-seventh Annual Banquet, 7:00 P.M., Tuesday, June 13, Hotel Duluth, and will be presented with lapel buttons and certificates at that time.

Meeting Places: The general sessions Monday, Tuesday and Wednesday will be held in the Duluth room, on the second floor of the Armory. The sectional meetings will be held in the St. Louis room, located in the northeast corner of the exhibition floor, except the Minnesota Academy of Ophthalmology and Otolaryngology, which will meet in the St. Mary's Hospital Staff Room, and the Minnesota Society of Clinical Pathologists, at St. Luke's Hospital.

Public Meeting: The Wednesday meeting this year will be devoted to a consideration of atomic energy, from medical and defense standpoints. The public is invited to attend the afternoon meeting, beginning at 2 p.m. Outstanding speakers—medical and military—will discuss "Atomic Energy in War and Peace."

Woman's Auxiliary: Physicians' wives attending the meeting may secure programs for the business and social sessions of the Woman's Auxiliary at the Women's Registration Desk on the mezzanine of the Hotel Duluth. All physicians' wives attending the meeting are cordially invited to attend the special events arranged by the hostesses of the St. Louis County Medical Auxiliary.

Obstetric Manikin Demonstrations: A discussion of delivery problems and techniques, with the use of the manikin, has been arranged through the courtesy of the Minnesota Department of Health. These discussions will be held at special luncheons on each of the three days of the Annual Meeting and at 5:15 in the Armory, Monday and Tuesday.

GUEST SPEAKERS

We are indebted to the following societies and organizations for guest speakers at this meeting:

The Minnesota Department of Health—Obstetric Manikin Demonstrators: Rodney F. Sturley, St. Paul, Clinical Instructor in Obstetrics and Gynecology, University of Minnesota; Ralph A. Reis, Associate Professor of Obstetrics and Gynecology, Northwestern University, Evanston, Illinois; Robert E. McDonald, Assistant Clinical Professor of Obstetrics and Gynecology, Marquette University, Milwaukee, Wisconsin; Speaker, Stewart Wolf, Associate Professor of Medicine, Cornell University Medical College, New York, New York.

The Minnesota Radiological Society—Speaker, Eugene Pendergrass, Professor of Radiology, University of Pennsylvania, Philadelphia, who will deliver the annual Russell D. Carman Memorial Lecture in Radiology.

The Minnesota Society of Clinical Pathologists—Speaker, Ancel Keys, Ph.D., Director of Physiological Hygiene of the University of Minnesota, Minneapolis, who will deliver the annual Arthur H. Sanford Lectureship in Pathology.

Northwestern Pediatric Society—Speaker, Armand J. Quick, Marquette University, School of Medicine, Milwaukee, Wisconsin.

Northern Minnesota Medical Association—Speaker, Robert Elman, Washington University Medical School, St. Louis, Missouri.

Other visiting speakers at this meeting:

C. Rollins Hanlon, Assistant Professor of Surgery, The Johns Hopkins Hospital, Baltimore, Maryland.

Howard A. Carter, Ph.D., Secretary, Council on Physical Medicine and Rehabilitation, AMA.

Colonel Elbert DeCoursey, Office of the Surgeon General, Washington, D. C.

Stephan Epstein, Marshfield Clinic, Marshfield, Wisconsin.

ROUND TABLES

Duluth and Spalding Hotels

12:15 P.M. Daily

Monday, June 12

OBSTETRIC MANIKIN DEMONSTRATION—Robert E. McDonald, Milwaukee, Wisconsin

Tuesday, June 13

MASSIVE UPPER GASTROINTESTINAL HEMORRHAGE—Robert Elman, St. Louis, Missouri

NEWER DRUGS AND THEIR USE—W. W. Spink, University of Minnesota

ANESTHESIA—K. E. Latterell, Duluth

DIARRHEA AND CONSTIPATION—William G. Sauer, Rochester

WHAT CAN THE GENERAL PRACTITIONER DO FOR THE NERVOUS CASE?—L. R. Gowan, Duluth

SURGICAL TREATMENT OF THE INJURED HAND—Tracy E. Barber, Austin

RECENT ADVANCES IN CLINICAL OBSTETRICS AND GYNECOLOGY—W. F. Mercil, Crookston

ALLERGY AND THE ANTIHISTAMINIC DRUGS—R. N. Bieter, University of Minnesota

THE PART OF THE GENERAL PRACTITIONER IN THE MANAGEMENT OF VESICAL NECK OBSTRUCTION—Frederic E. B. Foley, St. Paul

OBSTETRIC MANIKIN DEMONSTRATION—Ralph A. Reis, Evanston, Illinois

Wednesday, June 14

DIABETES—NEW INSULINS AND OTHER TREATMENT—S. H. Boyer, Jr., Duluth

CARDIAC EMERGENCIES—R. O. Sather, Crookston

THE CROSSEYED CHILD—Malcolm C. Pfunder, Minneapolis

DISABILITY EVALUATION—C. C. Chatterton, St. Paul

FARM INJURIES—H. H. Young, Rochester

MENSTRUAL IRREGULARITIES—B. F. P. Williams, Duluth

SURGICAL MANAGEMENT OF VARICOSE VEINS—W. J. Deweese, Bemidji

POSTOPERATIVE WOUND COMPLICATIONS—J. S. Spang, Duluth

MODERN CONCEPTS IN THE MANAGEMENT OF ACNE—Frederic T. Becker, Duluth

OBSTETRIC MANIKIN DEMONSTRATION—Rodney F. Sturley, St. Paul

SOCIAL EVENTS

Monday, June 12

Luncheons

AMERICAN MEDICAL WOMEN'S ASSOCIATION, INC.

12:15 p.m., Duluth Athletic Club, 402 West First Street. Dr. Selma Mueller, Duluth, will speak on her medical experiences in the Orient.
Make reservations with Dr. Mueller, 916 Medical Arts Building, Duluth. (Open to all visiting women physicians.)

MINNESOTA SOCIETY OF CLINICAL PATHOLOGISTS

Guests of hospital at 12:15 luncheon, following Sanford lectureship.

MINNESOTA CHAPTER OF THE AMERICAN COLLEGE OF CHEST PHYSICIANS

12:15 p.m., Ballroom Floor, Hotel Duluth.

Dinners

MINNEAPOLIS GENERAL HOSPITAL SURGICAL RESIDENTS SOCIETY

6:00 p.m., Duluth Athletic Club

MINNESOTA MEDICAL FOUNDATION AND MINNESOTA MEDICAL ALUMNI

6:00 p.m., Hotel Spalding
Program will include greetings from alumni and members of the Foundation; address by Donald J. Cowling, Ph.D., St. Paul, President Emeritus of Carleton College.
Make reservations with Dr. George N. Aagaard, 3411 Powell Hall, University of Minnesota, Minneapolis

NU SIGMA NU ALUMNI ASSOCIATION

6:00 p.m., Athletic Club

MINNESOTA RADIOLOGICAL SOCIETY

6:30 p.m., Northland Country Club.
Make reservations with Dr. A. L. Abraham, St. Luke's Hospital, Duluth

MINNESOTA CHAPTER OF THE AMERICAN ACADEMY OF GENERAL PRACTICE
6:00 p.m., Tally-Ho Room, Hotel Holland
Speaker will be Dr. E. C. Texter, Detroit, Michigan, Past President of the American Academy of General Practice.

MINNESOTA SOCIETY OF CLINICAL PATHOLOGISTS
6:00 p.m., St. Mary's Hospital

Tuesday, June 13

Breakfasts

FORMER ST. MARY'S INTERNS
8:00 a.m., St. Mary's Hospital

Luncheons

MEDICAL VETERANS SOCIETY OF MINNESOTA
12:15 p.m., Main Dining Room, Hotel Holland
Make reservations with Dr. E. Irvine Parson, 815 Fidelity Building, Duluth

NORTHWESTERN PEDIATRIC SOCIETY
12:15 p.m., Kitchi Gammi Club

Dinner

ANNUAL BANQUET—MINNESOTA STATE MEDICAL ASSOCIATION
7:00 p.m., Ballroom, Hotel Duluth

SPORT EVENTS

Golf Tournament: The annual Golf Tournament of the Minnesota State Medical Association will be held Sunday, June 11, at the Northland Country Club, with the tee-off at 1 p.m. All medical golfers are invited to enter and compete for the attractive prizes that have been donated. Make reservations on the enclosed card immediately. Robert H. LaBree, Duluth, is tournament chairman.

Lake Fishing: Daily expeditions along the North Shore of beautiful Lake Superior. Three-hour trips for groups from four to 12 persons. All fishing gear will be furnished with the boats, but an extra jacket is recommended. Price will be $1.50 to $3 per person, depending upon the size of the party. Make reservations in advance with Karl E. Johnson, 2031 West Superior Street, Duluth.

Trap Shooting: Three events will be held Sunday, June 11, from 12 noon till 6 p.m., at the Duluth-Mesabi Employes' Gun Club, Proctor:

Event I—"Fifty-Bird Event Skeet Shoot"—for Malcolm Pfunder Trophy, donated by Dr. Malcolm Pfunder of Minneapolis.

Event II—Duck Hunters' Special "Razzle-Dazzle 25-Bird Event"—for Leech Lake Trophy, donated by Dr. Vernon D. E. Smith of St. Paul.

Event III—"Twenty-five Bird Trap Shoot" Lewis classification if sufficient shooters in attendance. Prizes will be awarded.

Ammunition and windbirds will be available. A. C. Kelly, 825 Medical Arts Building, Duluth, is chairman of these events.

BUSINESS SESSIONS

Hotel Duluth

Saturday, June 10

2:00 P.M.—Council ....English Room
6:00 P.M.—Council ....English Room

Sunday, June 11

8:00 A.M.—Council ....English Room
10:00 A.M.—Reference Committees.....Ballroom Floor
12:00 noon—Council ....English Room
2:00 P.M.—House of Delegates........Ballroom
8:00 P.M.—House of Delegates........Ballroom

Monday, June 12

8:00 A.M.—Council and Minnesota Medical Service ....English Room
8:00 A.M.—Committee ....Ballroom Floor
State Health Relations
12:15 P.M.—House of Delegates........Ballroom

Tuesday, June 13

8:00 A.M.—Council and Minnesota State Board of Health...........English Room

8:00 A.M.—Committees...............Ballroom Floor
- Anesthesiology
- Cancer
- Child Health
- Diabetes
- First Aid and Red Cross
- Fractures
- General Practice
- Maternal Health
- Medical Testimony
- Public Policy
- Rural Medical Service
- Vaccination and Immunization

Wednesday, June 14

8:00 A.M.—Council...................English Room
8:00 A.M.—Committees............... Ballroom Floor
- Editing and Publishing
- Heart
- Historical
- Hospitals and Medical Education
- Insurance Liaison
- Medical Economics
- Military Affairs
- Ophthalmology
- Public Health Education and Radio
- Veterans Medical Service

9:00 A.M.—Installation of Officers....Duluth Armory

Scientific Program

Monday, June 12, 1950

SECTION I—GENERAL SESSION

A.M. *Morning*

8:30 Visit Scientific and Technical Exhibits........Armory

9:00 ADVANCES AND INVESTIGATION IN SURGERY OF THE HEART........Armory
Diagnosis—Paul F. Dwan, University of Minnesota
Radiology—Joseph Jorgens, University of Minnesota
Catheterization—Forrest H. Adams, Minneapolis
Surgical Treatment—C. Rollins Hanlon, Assistant Professor of Surgery, The Johns Hopkins Hospital, Baltimore, Maryland

10:00 Question and Answer Period

10:15 *Intermission*

Visit Scientific and Technical Exhibits........Armory

11:00 ARTHUR H. SANFORD LECTURESHIP IN PATHOLOGY........Armory
The Diet and Cardio-vascular Disease—Ancel Keys, Ph.D., Director of Physiological Hygiene of the University of Minnesota, Minneapolis
Presentation of Speaker—A. H. Wells, Duluth, President, Minnesota Society of Clinical Pathologists

P.M. *Afternoon*

12:15 OBSTETRIC MANIKIN DEMONSTRATION........Hotel Spalding
Robert E. McDonald, Assistant Clinical Professor of Obstetrics and Gynecology, Marquette University, Milwaukee, Wisconsin

1:30 Visit Scientific and Technical Exhibits........Armory

2:00 NEW ADVANCES IN TREATMENT OF JOINT DISEASES........Armory
Available Treatments in Arthritis—C. W. Fogarty, Jr., Saint Paul
Investigative Study in Arthritis—C. H. Slocumb, Rochester
MOVIE—"Effect of Cortisone and ACTH in Rheumatoid Arthritis"

3:05 Question and Answer Period

3:15 *Intermission*

Visit Scientific and Technical Exhibits........Armory

4:00 RUSSELL D. CARMAN MEMORIAL LECTURE........Armory
The Roentgen Diagnosis of Silicosis—Eugene Pendergrass, Professor of Radiology, University of Pennsylvania
Presentation of Speaker—J. P. Medelman, M. D., Saint Paul, President, Minnesota Radiological Society

5:00 Visit Scientific and Technical Exhibits........Armory

5:15 OBSTETRIC MANIKIN DEMONSTRATION........Armory
Ralph A. Reis, Associate Professor of Obstetrics and Gynecology, Northwestern University, Evanston, Illinois

Evening

8:00 OPEN HOUSE........Ballroom, Hotel Duluth
Duluth Physicians' Little Symphony Orchestra
Specialty musical numbers by members of orchestra
The Arrowhead Swing Square Dancers (George Gustafson)

9:00-12:00 DANCING
Joe Priley's Orchestra

Monday, June 12, 1950

SECTION II—SPECIAL SESSION

A.M.

8:30 MINNESOTA SOCIETY OF CLINICAL PATHOLOGISTS
Tumor Clinic........St. Luke's Hospital

10:15 *Intermission*

P.M.

2:00 MINNESOTA SOCIETY OF CLINICAL PATHOLOGISTS
Tumor Clinic (Continued)........St. Luke's Hospital

2:00 SCIENTIFIC SESSION ON DISEASES OF THE CHEST........St. Louis Room, Armory
Surgery of Valvular Heart Disease—Ivan Baronofsky, Minneapolis
Ciliary Action and Atelectasis—Anderson Hilding, Duluth
The Significance of Isolated Nodules in the Lung—David Sharp, Minneapolis; T. J. Kinsella, Minneapolis
The Clinical Evaluation of Pulmonary Insufficiency—Philip Soucheray, Saint Paul
Perforations of the Esophagus—W. D. Seybold, Rochester

Tuesday, June 13, 1950

SECTION I—GENERAL SESSION

A.M. *Morning*
8:30 Visit Scientific and Technical Exhibits.......................................Armory
9:00 Intravenous Treatment.......................................Armory
Blood Transfusions—R. W. Koucky, Minneapolis
Newer Solutions—John S. Lundy, Rochester
Dangers—Robert Elman, Washington University Medical School, St. Louis, Missouri
10:00 Question and Answer Period

10:15 *Intermission*

Visit Scientific and Technical Exhibits.......................................Armory
11:00 Northwestern Pediatric Society.......................................Armory
The Common Hemorrhagic Diseases of Childhood—Armand J. Quick, Marquette University, School of Medicine, Milwaukee, Wisconsin
Presentation of Speaker—Northrop Beach, President, Northwestern Pediatric Society

P.M. *Afternoon*
12:15 Obstetric Manikin Demonstration.......................................Hotel Spalding
Ralph A. Ries, Associate Professor of Obstetrics and Gynecology, Northwestern University, Evanston, Illinois
12:15 Round Table Luncheons
1:30 Visit Scientific and Technical Exhibits.......................................Armory
2:00 Newer Aspects of Urinary Tract Infections.......................................Armory
Diagnosis—Baxter A. Smith, Jr., Minneapolis
Office Treatment—Harold J. Walder, Duluth
Surgery—Frederic E. B. Foley, St. Paul
3:05 Question and Answer Period

3:15 *Intermission*

Visit Scientific and Technical Exhibits.......................................Armory
4:00 Panel Discussion.......................................Armory
Dystocia—Ralph A. Reis, Associate Professor of Obsterics and Gynecology, Northwestern University, Evanston, Illinois; Robert E. McDonald, Assistant Clinical Professor of Obstetrics and Gynecology, Marquette University, Milwaukee, Wisconsin; Russell J. Moe, Duluth
5:00 Visit Scientific and Technical Exhibits.......................................Armory
5:15 Obstetric Manikin Demonstration.......................................Armory
Robert E. McDonald, Assistant Clinical Professor of Obstetrics and Gynecology, Marquette University, Milwaukee, Wisconsin

Evening
7:00 Annual Banquet.......................................Ballroom, Hotel Duluth

Presiding: L. R. Gowan, President, St. Louis County Medical Society
Introduction of Mrs. Charles W. Waas, St. Paul, President, Woman's Auxiliary
Presentation of Fifty Club Certificates
Presentation of Southern Minnesota Medical Association Medal
Presentation of Distinguished Service Medal
Presidential Address—F. J. Elias, Duluth, President, Minnesota State Medical Association
Address—*Are We Ashamed of the Things That Have Made Us Great?*
Laurence M. Gould, Ph.D., President, Carleton College, Northfield, Minnesota

Tuesday, June 13, 1950

SECTION II—SPECIAL SESSION

A.M. *Morning*
9:00 Orthopedic and Fracture Surgery
Care of Cerebral Palsy—John Pohl, Minneapolis
Elbow Fractures in Children—Donald Lannin, Saint Paul
Plateau Fractures of the Tibia—Donovan McCain, Saint Paul

Intermission
11:00 *Prolapsed Intervertebral Disc Is Not the Only Cause of Back and Sciatic Pain*
H. Herman Young, Rochester
Open Discussion of the Back Problem—John Pohl, E. T. Evans, Herman Young
Flat Feet—Mark Coventry, Rochester

Afternoon
2:00 American College of Allergists
Introduction—Fred W. Wittich, Minneapolis, Secretary-Treasurer, The American College of Allergists

2:15 SKIN ALLERGY, NEWER TRENDS IN DIAGNOSIS AND MANAGEMENT—Stephan Epstein, Marshfield Clinic, Marshfield, Wisconsin, Clinical Associate Professor of Dermatology, University of Minnesota

10-minute discussion

2:45 RESPIRATORY ALLERGY
Hay Fever—Including Nonspecific and Specific Therapy—Fred W. Wittich, et al., Minneapolis

10-minute discussion

Recess

4:00 ALLERGIC RHINITIS AND BRONCHIAL ASTHMA—Albert V. Stoesser, Lloyd S. Nelson, University of Minnesota

15-minute discussion

4:45 STATUS ASTHMATICUS—William S. Eisenstadt, Minneapolis

Wednesday, June 14, 1950

SECTION I—GENERAL SESSION

A.M.

8:30 Visit Scientific and Technical Exhibits..Armory
9:00 MEDICAL APPLICATIONS OF RADIOACTIVE ISOTOPES
Physical Background—James Marvin, Minneapolis
The Application of Radioisotopes to Basic Research Problems—Leon Singer, Minneapolis
Clinical Applications of Radioisotopes—Howard L. Horns, Minneapolis
10:00 Question and Answer Period

10:15 *Intermission*

Visit Scientific and Technical Exhibits..Armory
11:00 PSYCHOSOMATIC MEDICINE—Stewart Wolf, Associate Professor of Medicine, Cornell University Medical College, New York, N. Y........................Armory
11:50 Question and Answer Period

P.M. *Afternoon*

12:15 OBSTETRIC MANIKIN DEMONSTRATION..................................Hotel Spalding
Rodney F. Sturley, St. Paul, Clinical Instructor in Obstetrics and Gynecology, University of Minnesota
12:15 ROUND TABLE LUNCHEONS
1:30 Visit Scientific and Technical Exhibits..Armory
2:00 ATOMIC ENERGY IN WAR AND PEACE..Armory
Jan H. Tillisch, Rochester, Presiding Chairman
March of Time Film—"Atomic Power"
The Physics of Atomic Energy of the Geiger-Mueller Counter—Howard A. Carter, Ph.D., Secretary Council on Physical Medicine and Rehabilitation, AMA
Medical Aspects of Atomic Explosion—Colonel Elbert DeCoursey, Office of the Surgeon General, Washington, D. C.
U. S. Army Film—"Operation Crossroads"
The Minnesota Program—Colonel Ernest B. Miller, State Director, Civil Defense and Disaster Relief, Adjutant General's Office, Saint Paul

Wednesday, June 14, 1950

SECTION II—SPECIAL SESSION

A.M.

9:00 MINNESOTA ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY—St. Mary's Hospital Staff Room
Presentation of Eye, Ear, Nose and Throat subjects by members of the Minnesota Academy of Ophthalmology and Otolaryngology

Minnesota State Medical Association

Roster for 1950

Officers

F. J. Elias, M.D.	*President*	Duluth
W. F. Hartfiel, M.D.	*First Vice President*	Saint Paul
C. W. Moberg, M.D.	*Second Vice President*	Detroit Lakes
B. B. Souster, M.D.	*Secretary*	Saint Paul
W. H. Condit, M.D.	*Treasurer*	Minneapolis
C. G. Sheppard, M.D.	*Speaker, House of Delegates*	Hutchinson
H. M. Carryer, M.D.	*Vice Speaker*	Rochester
R. R. Rosell	*Executive Secretary*	Saint Paul

Councilors*

First District

R. L. J. Kennedy, M.D. (1950)	Rochester

Second District

L. L. Sogge, M.D. (1950)	Windom

Third District

L. G. Smith, M.D. (1952)	Montevideo

Fourth District

H. J. Nilson, M.D. (1951)	North Mankato

Fifth District

Justus Ohage, M.D. (1952)	Saint Paul

Sixth District

O. J. Campbell, M.D. (1951) (Chairman)	Minneapolis

Seventh District

W. W. Will, M.D. (1952)	Bertha

Eighth District

W. L. Burnap, M.D. (1951)	Fergus Falls

Ninth District

A. O. Swenson, M.D. (1950)	Duluth

House of Delegates, American Medical Association*

Members

J. A. Bargen, M.D. (1950)	Rochester
W. A. Coventry, M.D. (1950)	Duluth
A. E. Cardle, M.D. (1951)	Minneapolis
George Earl, M.D. (1951)	Saint Paul

*Terms expire December 31 of year indicated.

Alternates

J. C. Hultkrans, M.D. (1950	Minneapolis
W. L. Burnap, M.D. (1950)	Fergus Falls
W. W. Will, M.D. (1951)	Bertha
E. M. Hammes, M.D. (1951)	Saint Paul

Scientific Committees

COMMITTEE ON SCIENTIFIC ASSEMBLY

F. J. Elias, M.D., General Chairman	Duluth
E. M. Hammes, M.D.	Saint Paul
R. R. Rosell	Saint Paul

SECTION ON MEDICINE

J. A. Bargen, M.D.	Rochester
H. B. Sweetser, Jr., M.D.	Minneapolis

SECTION ON SPECIALTIES

G. I. Badeaux, M.D.	Brainerd
C. B. Nessa, M.D.	Saint Cloud

SECTION ON SURGERY

A. H. Pederson, M.D.	Saint Paul
M. G. Gillespie, M.D.	Duluth

LOCAL ARRANGEMENTS

A. J. Spang, M.D.	Duluth

COMMITTEE ON ANESTHESIOLOGY

R. C. Adams, M.D.	Rochester
J. W. Baird, M.D.	Minneapolis
J. H. Crowley, M.D.	Saint Paul
R. T. Knight, M.D.	Minneapolis
K. E. Latterell, M.D.	Duluth
T. H. Seldon, M.D.	Rochester

COMMITTEE ON CANCER*

A. H. Wells, M.D. (1950)	Duluth
D. P. Anderson, Jr., M.D. (1952)	Austin
Herbert Boysen, M.D. (1952)	Madelia
D. S. Fleming, M.D. (1950)	Minneapolis
M. G. Fredericks, M.D. (1950)	Duluth
E. C. Hartley, M.D. (1952)	Saint Paul
J. A. Johnson, M.D. (1951)	Minneapolis
N. L. Leven M.D. (1950)	Saint Paul
T. B. Magath, M.D. (1950)	Rochester
F. H. Magney, M.D. (1951)	Duluth
Martin Nordland, M.D. (1951)	Minneapolis
I. L. Oliver, M.D. (1952)	Graceville

*Terms expire December 31 of year indicated.

COMMITTEE ON CHILD HEALTH

G. B. Logan, M.D.	Rochester
S. L. Arey, M.D.	Minneapolis
F. G. Hedenstrom, M.D.	Saint Paul
R. J. Josewski, M.D.	Stillwater
R. L. J. Kennedy, M.D.	Rochester
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LINCOLN COUNTY

A. L. Vadheim	Tyler
P. E. Hermanson	Hendricks
George Friedell	Ivanhoe

LYON COUNTY

B. C. Ford	Marshall
A. D. Hoidale	Tracy
W. W. Yaeger	Marshall

MAHNOMEN COUNTY

K. W. Covey	Mahnomen
K. A. Danford	Mahnomen

MARSHALL COUNTY

A. E. Carlson	Warren
I. G. Wiltrout	Oslo
C. N. Holmstrom	Warren

MARTIN COUNTY

R. C. Hunt	Fairmont
O. E. Wandke	Fairmont
J. M. Grogan	Ceylon

MCLEOD COUNTY

H. H. Holm	Glencoe
A. M. Jensen	Brownton
E. W. Lippmann	Hutchinson

MEEKER COUNTY

H. E. Wilmot	Litchfield
John Verby	Litchfield
Lennox Danielson	Litchfield

MILLE LACS COUNTY

Melvin Vik	Onamia
W. R. Blomberg	Princeton
A. T. Kapsner	Princeton

MORRISON COUNTY

D. L. Johnson	Little Falls
Alex Watson	Royalton
E. J. Simons	Swanville

MOWER COUNTY

R. S. Hegge	Austin
P. A. Robertson	Austin
R. R. Wright	Austin
L. F. Twiggs	Austin

MURRAY COUNTY

B. M. Stevenson	Fulda
R. F. Pierson	Slayton
H. D. Patterson	Slayton

NICOLLET-LE SUEUR COUNTY

Hobart Johnson	North Mankato
L. E. Sjostrom	St. Peter
M. E. Lenander	St. Peter

NOBLES COUNTY

E. W. Arnold	Adrian
E. A. Kilbride	Worthington
C. R. Stanley	Worthington

NORMAN COUNTY

Eskil Erickson	Halstad
Theodore Loken	Ada
Bruce Boynton	Ada

OLMSTED COUNTY

H. F. Polley	Rochester
T. O. Wellner	Rochester
C. B. McKaig	Pine Island

OTTER TAIL COUNTY

Charles Lewis	Henning
W. L. Burnap	Fergus Falls
Howard Kaliher	Pelican Rapids

PENNINGTON COUNTY

O. F. Mellby	Thief River Falls
T. E. Bratrud	Thief River Falls
M. D. Starekow	Thief River Falls

PINE COUNTY

A. K. Stratte	Pine City
E. G. Hubin	Sandstone
H. P. Dredge	Sandstone

PIPESTONE COUNTY

W. G. Benjamin	Pipestone
J. G. Lohmann	Pipestone
G. Beckering	Edgerton

POLK COUNTY

C. L. Oppegaard	Crookston
J. F. Norman	Crookston
George Sather	Fosston

POPE COUNTY

Paul Swedenberg	Glenwood
A. F. Giesen	Starbuck
B. A. McIver	Lowry

RAMSEY COUNTY

A. G. Schulze	St. Paul
T. S. McClanahan	White Bear Lake
Earl Black	St. Paul

RED LAKE COUNTY

L. M. Dale	Red Lake Falls
James H. Reinhardt	Red Lake Falls

REDWOOD COUNTY

R. A. Peterson	Vesta
R. J. Cairns	Redwood Falls

RENVILLE COUNTY

J. Dordahl	Sacred Heart
A. M. Fawcett	Renville
J. A. Cosgriff	Olivia

RICE COUNTY

D. W. Francis	Morristown
P. H. Weaver	Faribault
Warren Wilson	Northfield

ROCK COUNTY

C. L. Sherman	Luverne
O. W. Anderson	Luverne
F. W. Bofenkamp	Luverne

ROSEAU COUNTY

J. L. Delmore, Sr.	Roseau
D. O. Berge	Roseau
L. O. Pearson	Warroad

ST. LOUIS COUNTY

A. G. Athens	Duluth
M. F. Fellows	Duluth
H. G. Moehring	Duluth

SCOTT COUNTY

H. M. Jurgens	Belle Plaine
B. F. Pearson	Shakopee
F. P. Kortsch	Prior Lake

SHERBURNE COUNTY

A. B. Roehlke	Elk River
E. F. Clothier	Elk River
G. H. Tesch	Elk River

SIBLEY COUNTY

Rolf Hovde	Winthrop
Thomas Martin	Arlington
D. C. Olson	Gaylord

STEARNS COUNTY

R. N. Jones	St. Cloud
K. A. Walfred	St. Cloud
C. F. Brigham	St. Cloud

STEELE COUNTY

D. H. Dewey	Owatonna
W. H. Peterson	Owatonna

STEVENS COUNTY

M. L. Ransom	Hancock
R. A. Rossberg	Morris
A. I. Arneson	Morris

SWIFT COUNTY

E. J. Kaufman	Appleton
R. P. Griffin	Benson
Hans Johnson	Kerkhoven

TODD COUNTY

M. E. Mosby	Long Prairie
J. M. Cook	Staples
C. B. Will	Bertha

TRAVERSE COUNTY

A. L. Lindberg	Wheaton
A. E. Magnuson	Wheaton
W. F. Muir	Browns Valley

WABASHA COUNTY

C. G. Ochsner	Wabasha
E. C. Bayley	Lake City
E. W. Ellis	Elgin

WADENA COUNTY

L. T. Davis	Wadena
C. H. Pierce	Wadena
W. E. Parker	Sebeka

WASECA COUNTY

O. J. Swenson	Waseca
H. M. McIntire	Waseca
B. J. Gallagher	Waseca

WASHINGTON COUNTY

W. R. Humphrey	Stillwater
Russell E. Carlson	Stillwater

WATONWAN COUNTY

O. E. Hagen	Butterfield
F. L. Bregel	St. James

WILKIN COUNTY

W. E. Wray	Campbell

WINONA COUNTY

R. H. Wilson	Winona
R. B. Tweedy	Winona
Herbert Heise	Winona

WRIGHT COUNTY

John J. Catlin	Buffalo
C. L. Roholt	Waverly

YELLOW MEDICINE COUNTY

R. H. Kath	Wood Lake
E. R. Hudec	Echo
Paul Schmidt	Granite Falls
M. I. Hauge	Clarkfield

Councilor Districts

First District

R. L. J. Kennedy, M.D. .... Rochester
Counties—Dodge, Fillmore, Freeborn, Goodhue, Houston, Mower, Olmsted, Rice, Steele, Wabasha, Winona

Second District

L. L. Sogge, M.D. .... Windom
Counties—Cottonwood, Faribault, Jackson, Martin, Murray, Nobles, Pipestone, Rock.

Third District

L. G. Smith, M.D. .... Montevideo
Counties—Big Stone, Chippewa, Kandiyohi, Lac Qui Parle, Lincoln, Lyon, Meeker, Pope, Renville, Stevens, Swift, Traverse, Yellow Medicine.

Fourth District

H. J. Nilson, M.D. .... North Mankato
Counties—Blue Earth, Brown, Carver, Le Sueur, McLeod, Nicollet, Redwood, Scott, Sibley, Waseca, Watonwan.

Fifth District

Justus Ohage, M.D. .... Saint Paul
Counties—Anoka, Chisago, Dakota, Isanti, Kanabec, Mille Lacs, Pine, Ramsey, Sherburne, Washington.

Sixth District

O. J. Campbell, M.D. .... Minneapolis
Counties—Hennepin, Wright.

Seventh District

W. W. Will, M.D. .... Bertha
Counties—Aitkin, Beltrami, Benton, Cass, Clearwater, Crow Wing, Hubbard, Koochiching, Morrison, Stearns, Todd, Wadena.

Eighth District

W. L. Burnap, M.D. .... Fergus Falls
Counties—Becker, Clay, Douglas, Grant, Kittson, Lake of the Woods, Mahnomen, Marshall, Norman, Otter Tail, Pennington, Polk, Red Lake, Roseau, Wilkin.

Ninth District

A. O. Swenson, M.D. .... Duluth
Counties—Carlton, Cook, Itasca, Lake, St. Louis.

Woman's Auxiliary to the Minnesota State Medical Association

Officers

Mrs. H. E. Bakkila	*President*	Duluth
Mrs. Charles W. Waas	*President-Elect*	St. Paul
Mrs. Harold F. Wahlquist	*Past President*	Minneapolis
Mrs. Joseph M. Neal	*First Vice President*	St. Paul
Mrs. C. L. Sheedy	*Second Vice President*	Austin
Mrs. F. P. Moersch	*Third Vice President*	Rochester
Mrs. F. J. Elias	*Fourth Vice President*	Duluth
Mrs. L. A. Stelter	*Recording Secretary*	Minneapolis
Mrs. Harry Klein	*Corresponding Secretary*	Duluth
Mrs. John Dordal	*Treasurer*	Sacred Heart
Mrs. O. M. Heiberg	*Auditor*	Worthington
Mrs. T. O. Young	*Historian*	Duluth
Mrs. S. S. Hesselgrave	*Parliamentarian*	Center City

Regional Advisors

Mrs. W. A. Merritt	*First District*	Rochester
Mrs. Water Benjamin	*Second District*	Pipestone
Mrs. O. B. Fesenmaier	*Third District*	New Ulm
Mrs. A. A. Passer	*Fourth District*	Olivia
Mrs. C. Harry Ghent	*Fifth District*	St. Paul
Mrs. Frederick H. K. Schaaf	*Sixth District*	Minneapolis
Mrs. R. N. Jones	*Seventh District*	St. Cloud
Mrs. C. L. Oppegaard	*Eighth District*	Crookston
Mrs. M. C. Gillespie	*Ninth District*	Duluth

Chairmen of Committees

Standing Committees

Advisory—Mrs. A. J. Bianco	Duluth
Archives—Mrs. T. N. Fleming	St. Cloud
Bulletin—Mrs. W. H. Van der Weyer	St. Paul
Cancer—Mrs. Mark Ryan	St. Paul
Editor, Minnesota Medicine—Mrs. S. N. Litman	Duluth
Emergency Nursing—Mrs. George L. Merkert	Minneapolis
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Hygeia—Mrs. J. A. Cosgriff	Olivia
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Organization—Mrs. Charles W. Waas	St. Paul
Press and Publicity—Mrs. N. O. Pearce	Minneapolis
Printing—Mrs. A. Christiansen	St. Paul
Program and Health Education—Mrs. David Halpern	Brewster
Public Relations—Mrs. E. W. Miller	Anoka
Resolutions—Mrs. H. H. Fesler	St. Paul
Revisions—Mrs. George Penn	Mankato
Social—Mrs. O. I. Sohlberg	St. Paul

Special Committees

News Letter—Mrs. Leonard Arling	Minneapolis
Workshop—Mrs. Reuben Erickson	Minneapolis
Roster—Mrs. Harold G. Benjamin	Minneapolis
Health Days—Mrs. Harold Wahlquist	Minneapolis

County Society Roster

Key to Symbols: *Deceased; † Affiliate, Associate or Life Member; ¶Affiliate or Life Membership Pending; ‡In Service; §Wife is Member of Woman's Auxiliary.

BLUE EARTH COUNTY MEDICAL SOCIETY

Regular meetings, last Monday of each month
Annual meeting in May
Number of Members: 45

President
Schmitz, A. A. .... Mankato
Secretary
Jones, O. H. .... Mankato

Aga, John	Mankato
Andrews, R. N.	Mankato
§Batdorf, B. N.	Good Thunder
§Butzer, J. A.	Mankato
§†Dahl, G. A.	Mankato
§Denman, A. V.	Mankato
†Edwards, R. T.	Columbus, Ohio
§Engstrom, Robert	Mankato
§Eustermann, J. J.	Mankato
§Franchere, F. W.	Lake Crystal
§Fugina, G. R.	Mankato
§Haes, J. E.	Mankato
§Hammar, L. M.	Mankato
Hankerson, R. G.	Minnesota Lake
§Hassett, R. G.	Mankato
§Hoeper, P. G.	Mankato
§Howard, E. G.	Mapleton
§Howard, M. I.	Mankato
§Huffington, H. L.	Mankato
§Jones, O. H.	Mankato
§Juliar, R. O.	St. Clair
§Kaufman, W. B.	Mankato
§Kearney, R. W.	Mankato
§Keil, M. A.	Mankato
§Kemp, A. F.	Mankato
§Koenigsberger, Chas.	Mankato
§Langhoff, A. H.	Mankato
Liedloff, A. G.	Mankato
Luck, Hilda	Mankato
§Mickelson, J. C.	Mankato
§Miller, V. I.	Mankato
§Morgan, H. O.	Amboy
§Penn, G. E.	Mankato
§Samuelson, L. G.	Mankato
†Schmidt, P. A.	Monroe, Oregon
§Schmitz, A. A.	Mankato
§Sjoding, J. D.	Mankato
§Smith, P. M.	Lake Crystal
§†Sohmer, A. E.	Mankato
§Stillwell, W. C.	Mankato
§Troost, H. B.	Mankato
§Vezina, J. C.	Mapleton
§Von Drasek, J.	Mankato
§Wentworth, A. J.	Mankato
Williams, H. O.	Lake Crystal

BLUE EARTH VALLEY MEDICAL SOCIETY

Faribault and Martin Counties

Regular meetings, first Thursday of month
Annual meeting, first Thursday in November
Number of Members: 38

President
Hanson, Lewis .... Frost

Secretary
Boysen, Herbert .... Madelia

Armstrong, R. S.	Winnebago
§Bailey, R. B.	Phoenix, Ariz.
Barr, W. H.	Wells
§Boysen, Herbert	Madelia
§Burmeister, R. O.	Welcome
Chambers, W. C.	Blue Earth
Cooper, M.D.	Winnebago
§Drexler, G. W.	Blue Earth
†Farrish, R. C.	Sherburn
§Gardner, V. H.	Fairmont
§Grogan, J. M.	Ceylon
Hanson, Lewis	Frost
Heimark, J. J.	Fairmont
†Holm, P. F.	Wells
†Hunt, A. F.	Alhambra, Calif.
Hunt, R. C.	Fairmont
§Hunt, R. S.	Fairmont
Krause, C. W.	Fairmont
Lester, M. J., Jr.	Fairmont
McGroarty, J. J.	Easton
Medlin, C. F.	Truman
Mills, J. L.	Winnebago
§Misbach, W. D.	Fairmont
Parsons, R. L.	Monterey
§Rollins, T. G.	Elmore
Rowe, W. H.	Fairmont
§Russ, H. H.	Blue Earth
Shragg, Harry	Elmore
Smith, D. V.	Blue Earth
§Snyder, C. D.	Kiester
§Thayer, E. A.	Fairmont
Vaughan, V. M.	Truman
§Virnig, M. P.	Wells
§Virnig, R. P.	Wells
§Wandke, Otto E.	Fairmont
§Wenzel, R. E.	Blue Earth
Wilson, C. E.	Blue Earth
§Zemke, E. E.	Fairmont

BROWN-REDWOOD-WATONWAN COUNTY

Regular meetings quarterly
Annual meeting, May
Number of Members: 38

President
Vogel, H. A. .... New Ulm
Secretary
Fesenmaier, O. B. .... New Ulm

Benton, P. C.	Minneapolis
Bergman, O. B.	St. James
Black, W. A.	New Ulm
Bratrude, E. J.	St. James
§Bregel, F. L.	St. James
§Cairns, R. J.	Redwood Falls
Coulter, H. E.	Madelia
§Dubbe, F. H.	New Ulm
§Dysterheft, A. F.	Gaylord
Esser, O. J.	New Ulm
§Fesenmaier, O. B.	New Ulm
Flinn, J. B.	Redwood Falls
§Fritsche, Albert	New Ulm
§Fritsche, C. J.	New Ulm
§Fritsche, T. R.	New Ulm
§Gibbons, F. C.	Comfrey
§Glaeser, J. H.	Gibbon
Goblirsch, A. P.	Sleepy Eye
Hovde, Rolf	Winthrop
Johnson, A. F.	Sanborn
Just, H. J.	Hastings
§Keithahn, E. E.	Sleepy Eye
§Kitzberger, P. J.	New Ulm
§Kruzick, S. J.	Sleepy Eye
§Kusske, A. L.	New Ulm
§Kusske, B. W.	New Ulm
Mattson, A. D.	St. James
§Nelson, Glen	Fairfax
Nuessle, W. G.	Springfield
§Penk, E. L.	Springfield
Peterson, R. A.	Vesta
§†Reineke, G. F.	New Ulm
§Saffert, C. A.	New Ulm
Schroeppel, J. E.	Winthrop
§Seifert, O. J.	New Ulm
Theim, C. E.	St. Paul
§Vogel, H. A. L.	New Ulm
§Wohlrabe, E. J.	Springfield

CAMP RELEASE MEDICAL SOCIETY

Chippewa, Lac Qui Parle and Yellow Medicine Counties

Regular meetings, Second and Fourth weeks of April, May, September, and October
Number of Members: 28

President
Lima, Ludwig .... Montevideo
Secretary
Johnson, V. M. .... Dawson

Andrejek, A. R.	Milaca
§Boody, G. J., Jr.	Dawson
§Burns, F. M.	Milan
§Burns, M. A.	Milan
Guilbert, G. D.	Legion, Texas
Hartfiel, H. A.	Montevideo
§Hauge, M. I.	Clarkfield
Holmberg, L. J.	Canby
§Hudec, E. R.	Echo
§Johnson, V. M.	Dawson
†Jordan, Kathleen	Granite Falls
Jordan, L. S.	Granite Falls
Kath, R. H.	Wood Lake
Kaufman, W. C.	Appleton
§Krystosek, Lee A.	Clara City
†Larson, P. G.	Cleveland, Ohio
§Lima, L. R., Jr.	Montevideo
Lundell, C. L.	Granite Falls
§Nelson, M. S.	Granite Falls
§Owens, W. A.	Montevideo
§Pertl, A. L.	Canby
§Roust, H. A.	Montevideo
§Schmidt, P. G., Jr.	Granite Falls
§Smith, L. G.	Montevideo
Swanson, R. R.	Minneapolis
§Walston, J. H.	Clarkfield
§Westby, Magnus	Madison
*Westby, Nels	Madison

CLAY-BECKER COUNTY MEDICAL SOCIETY

Regular meetings quarterly
Annual meeting, December
Number of Members: 27

President
Moe, A. E. .... Moorhead

Secretary
Flancher, L. H. .... Lake Park

†Aborn, W. H. .... Hawley
§Bloemendaal, E. J. G. .... Lake Park
Boisclair, Thomas G. .... Detroit Lakes
Bottolfson, B. T. .... Fargo, N. D.
§Bourget, G. E. .... Hudson, Wis.
Carman, J. E. .... Detroit Lakes
§Dodds, Wm. C. .... Detroit Lakes
§Duncan, J. W. .... Moorhead
Ellingson, A. R. .... Detroit Lakes
Flancher, L. H. .... Lake Park
Hagen, O. J. .... Moorhead
Humphrey, E. W. .... Moorhead
Ingebrigtson, E. K. .... Moorhead
Johnson, Olga H. .... Moorhead
§Larson, Arnold .... Detroit Lakes
§Midthune, A. S. .... Lake Park
§Moberg, C. W. .... Detroit Lakes
§Moe, A. E. .... Moorhead
§Oliver, James .... Moorhead
§Otto, H. C. .... Frazee
§Rice, H. G. .... Moorhead
§Rutledge, L. H. .... Detroit Lakes
Saxman, Gertrude Olson .... Georgetown
Seitz, S. B. .... Richardton, N. D.
§Simison, Carl .... Barnesville
Thysell, F. A. .... Moorhead
Thysell, V. D. .... Hawley

EAST CENTRAL MINNESOTA MEDICAL SOCIETY

Anoka, Chisago, Isanti, Kanabec, Mille Lacs, Pine and Sherburne Counties
Regular meetings, February, April, June, August, October, December
Annual meeting, December
Number of Members: 39

President
Whitney, R. A. .... Cambridge

Secretary
Roehlke, A. B. .... Elk River

§Albrecht, H. H. .... Chisago City
Arends, A. L. .... Moose Lake
Berge, H. L. .... Mora
Beyer, E. F. .... Braham
§Blomberg, W. R. .... Princeton
Bossert, C. S. .... Mora
§Bunker, B. W. .... Anoka
*Burns, H. A. .... Anoka
Clothier, E. F. .... Elk River
†Dedolph, T. H. .... Minneapolis
Dredge, H. P. .... Sandstone
§Gully, R. J. .... Cambridge
Halpin, J. E. .... Rush City
§Hedenstrom, L. H. .... Cambridge
Holmes, A. E. .... Rush City
Hubin, E. G. .... Sandstone
Kapsner, A. T. .... Princeton
Krieser, A. E. .... Anoka
Mach, R. F. .... Rush City
§McManus, W. F. .... Princeton
§March, K. A. .... Cambridge
Metcalf, N. B. .... Onamia
§Miller, E. W. .... Anoka
§Nordman, W. F. .... Mora
Nygren, W. T. .... Braham
O'Hanlon, J. A. .... Minneapolis
Peterson, C. A. .... Minneapolis
§Petersen, P. C. .... Mora
§Roehlke, A. B. .... Elk River
Sanderson, D. J. .... Princeton
Schlesselman, G. H. .... Minneapolis
§Sherman, H. T. .... Cambridge
Spurzem, R. J. .... Anoka
§Stratte, A. K. .... Pine City
§Swensen, R. G. .... North Branch
§Tesch, G. H. .... Elk River
Trommald, Gladys .... Anoka
Vik, Melvin .... Onamia
Waller, J. D. .... Pine City
§Whitney, R. A. .... Cambridge

FREEBORN COUNTY MEDICAL SOCIETY

Regular meetings quarterly
Annual meeting, December
Number of Members: 28

President
Nesheim, M. O. .... Emmons

Secretary
Palmerton, E. S. .... Albert Lea

§Barr, L. C. .... Albert Lea
Burns, Catherine .... Albert Lea
§Butturff, C. R. .... Freeborn
†§Calhoun, F. W. .... Albert Lea
§Demo, Robert A. .... Albert Lea
§Donovan, D. L. .... Albert Lea
Egge, S. G. .... Albert Lea
§Erdal, O. A. .... Albert Lea
§Folken, F. G. .... Albert Lea
Freeman, J. P. .... Glenville
§Freligh, W. P. .... Albert Lea
†Gullixson, A. .... Albert Lea
§Hansen, T. M. .... Albert Lea
Kaasa, L. J. .... St. Peter
¶Leopard, B. A. .... Albert Lea
§Neel, H. B. .... Albert Lea
§Nelson, Clayton E. J. .... Albert Lea
§Nesheim, M. O. .... Emmons
§Palmer, C. F. .... Albert Lea
†Palmer, W. L. .... Albert Lea
§Palmerton, E. S. .... Albert Lea
§Person, J. P. .... Albert Lea
§Prins, L. R. .... Albert Lea
§Rechlitz, E. T. .... Albert Lea
Schmidt, R. F. .... Alden
¶Schultz, J. A. .... Albert Lea
§Steiner, L. E. .... Albert Lea
§Whitson, S. A. .... Albert Lea

GOODHUE COUNTY MEDICAL SOCIETY

Regular meetings, none
Annual meeting, December
Number of Members: 26

President
Miller, W. R. .... Red Wing

Secretary
Hartnagel, G. F. .... Red Wing

Aanes, A. M. .... Red Wing
§Akins, W. M. .... Red Wing
§Anderson, S. H. .... Red Wing
Bagby, G. W. .... Cannon Falls
§Brusegard, J. F. .... Red Wing
Claydon, H. F. .... Red Wing
§Cochrane, B. B. .... Red Wing
Flom, M. G. .... Zumbrota
§Graves, R. B. .... Red Wing
§Hartnagel, G. F. .... Red Wing
§Hawley, G. M. B., III .... Red Wing
§Hedin, R. F. .... Red Wing
Johnson, A. E. .... Minneapolis
†Jones, A. W. .... Red Wing
§Juers, E. H. .... Red Wing
§Kimmel, G. C. .... Red Wing
§Larson, O. E. .... Zumbrota
§Liffrig, W. W. .... Red Wing
§McGuigan, H. T. .... Red Wing
§Miller, W. R. .... Red Wing
§Pfuetze, K. H. .... Cannon Falls
§Reitmann, J. H. .... Hastings
§Sherman, R. V. .... Red Wing
†Smith, M. W. .... Red Wing
§Steffens, L. A. .... Red Wing
§Williams, M. R. .... Cannon Falls

HENNEPIN COUNTY MEDICAL SOCIETY

Regular meetings, first Monday each month, October through May
Annual meeting, October
Number of Members: 815

President
McGandy, R. F. .... Minneapolis

Secretary
Aling, Chas. A. .... Minneapolis

Executive Secretary
Cook, Thomas P. .... Minneapolis

§Aagaard, G. N., Jr. .... Minneapolis
§Abramson, Milton .... Minneapolis
Adams, F. H. .... Minneapolis
†Adkins, C. D. .... Minneapolis
§Ahern, E. E. .... Minneapolis
Alexander, H. A. .... Minneapolis
Alger, E. W. .... Minneapolis
§Aling, C. A. .... Minneapolis
§Altnow, H. O. .... Minneapolis
§Andersen, S. C. .... Minneapolis
§Anderson, D. D. .... Minneapolis
§Anderson, E. D. .... Minneapolis
§Anderson, E. R. .... Minneapolis
§Anderson, F. J. .... Minneapolis
*§Anderson, J. K. .... Minneapolis
§Anderson, K. W. .... Minneapolis
§Anderson, U. S. .... Minneapolis
Anderson, W. H. .... Minneapolis
Anderson, W. T. .... Minneapolis
§Andreassen, E. C. .... St. Paul
Andresen, K. D. .... Minneapolis
§Andrews, R. S. .... Minneapolis
§Arey, S. L. .... Minneapolis
§Arlander, C. E. .... Minneapolis
§Arling, L. S. .... Minneapolis
Arnold, Ann W. .... Minneapolis
Arnold, D. C. .... Minneapolis
§Arvidson, C. G. .... Minneapolis
†§Aune, Martin .... Minneapolis
†Aurand, W. H. .... Minneapolis
Austin, W. E. .... Minneapolis
§Baird, J. W. .... Minneapolis
§Baken, M. P. .... Minneapolis
Baker, A. B. .... Minneapolis
Baker, A. T. .... Minneapolis
§Baker, E. L. .... Minneapolis
†Baker, Looe .... Minneapolis
§Baker, M. E. .... Minneapolis
§Balkin, S. G. .... Minneapolis
‡Bank, E. W. .... Fort Howard, Md.
Bank, H. E. .... Portland, Oregon
†Barber, J. P. .... Ely
Barr, M. M. .... Minneapolis
Barr, R. N. .... St. Paul
§Barron, Moses .... Minneapolis
Barron, S. S. .... Minneapolis
Bateman, Olive L. .... Hopkins
§†Baxter, S. H. .... Minneapolis

§Beach, Northrop	**Minneapolis**
†Beard, A. H.	**Minneapolis**
†Becker, Arnetta M.	Minneapolis
†Beckman, W. G.	**Palo Alto, Calif.**
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Pratt, F. J., Jr.	**Minneapolis**
†Pratt, F. J., Sr.	**Minneapolis**
Preine, I. A.	Minneapolis
§Preston, P. J.	**Minneapolis**
§Priest, R. E.	**Minneapolis**
§†Prim, J. A.	**Minneapolis**
§Proffitt, W. E.	Minneapolis
§Proshek, C. E.	**Minneapolis**
§Quello, R. O. B.	**Minneapolis**
§Quist, H. W., Jr.	**Minneapolis**
§Quist, H. W., Sr.	Minneapolis
§Ransom, H. R.	**Osseo**
Reader, D. R.	**Minneapolis**
§Regan, J. J.	Minneapolis
§Regnier, E. A.	**Minneapolis**
§Reid, L. M.	Excelsior
§Reif, H. A.	**Minneapolis**
§Reiley, R. E.	**Minneapolis**
§Resch, J. A.	Minneapolis
§Rice, C. O.	**Minneapolis**
Rice, F. B.	Minneapolis
§Richdorf, L. F.	**Minneapolis**
§Rieke, W. W.	**Wayzata**
Rigler, L. G.	**Minneapolis**
Riordan, Elsie M.	**Minneapolis**
§Risch, R. E.	**Minneapolis**
Rizer, D. K.	**Minneapolis**
Rizer, R. I.	**Minneapolis**
Robb, E. F.	**Minneapolis**
§Robbins, O. F.	**Minneapolis**
§Roberts, L. J.	Minneapolis
§Roberts, S. W.	**Minneapolis**
†§Roberts, W. B.	Minneapolis
§Rockwell, C. V.	**Minneapolis**
§Rodda, F. C.	**Minneapolis**
*§Rodgers, C. L.	Minneapolis
§Rodgers, R. S.	Minneapolis
§Rosendahl, F. G.	**Minneapolis**
§Rosenfield, A. B.	Minneapolis
§Rosenow, J. H.	**Minneapolis**
§Rosenwald, R. M.	**Minneapolis**
§Ross, A. J.	Minneapolis
§Rucker, W. H.	**Minneapolis**
Rud, N. E.	**Minneapolis**
Rudell, G. L.	**Minneapolis**
§Russeth, A. N.	Minneapolis
§Rusten, E. M.	**Minneapolis**
Ruzicka, F. F.	Minneapolis

Rydburg, W. C.	Minneapolis
§**Sadler, W. P.**	**Minneapolis**
St. Cyr, H. M.	Minneapolis
§St. Cyr, K. J.	Robbinsdale
§**Saliterman, B. I.**	**Minneapolis**
§Samuelson, Samuel	Minneapolis
§**Sandt, K. E.**	**Minneapolis**
Sanford, R. A.	Minneapolis
§**Sawatzky, W. A.**	**Minneapolis**
Sborov, A. M.	Minneapolis
§**Schaaf, F. H. K.**	**Minneapolis**
†Schaar, F. E.	Minneapolis
§**Schaefer, W. G.**	**Minneapolis**
†**Scheldrup, N. H.**	**Minneapolis**
§**Scherer, L. R.**	**Minneapolis**
§Scherling, S. S.	Minneapolis
§Schiele, B. C.	Minneapolis
§**Schmidt, G. F.**	**Minneapolis**
†Schmitt, S. C.	San Diego, Calif.
†**Schneider, J. P.**	**Minneapolis**
†Schneider, R. A.	Minneapolis
*†Schneidman, N. R.	Minneapolis
§Schottler, M. E.	Minneapolis
Schroeder, A. J.	Minneapolis
§Schultz, J. H.	Minneapolis
§Schultz, P. J.	Minneapolis
§Schulze, W. M.	Minneapolis
*†Schussler, O. F.	Minneapolis
§**Schwartz, V. J.**	**Minneapolis**
†**Schwyzer, Gustav**	**Minneapolis**
†**Scott, F. H.**	**Minneapolis**
§**Scott, H. G.**	**Minneapolis**
§Seaberg, J. A.	Minneapolis
§†**Seashore, Gilbert**	**Minneapolis**
§Segal, M. A.	Minneapolis
Seham, Max	**Minneapolis**
§**Seifert, M. H.**	**Excelsior**
§Seljeskog, S. R.	Minneapolis
§Semsch, R. D.	Minneapolis
§**Shandorf, J. F.**	**Minneapolis**
Shaperman, Eva P.	**Minneapolis**
§**Shapiro, M. J.**	**Minneapolis**
Shapiro, Sidney	Minneapolis
Sharp, D. V.	**Minneapolis**
§Shea, A. W.	Minneapolis
Sher, Louis	**Minneapolis**
§Shronts, J. F.	Minneapolis
§**Siegmann, W. C.**	**Minneapolis**
Silver, J. D.	**Minneapolis**
§†**Simons, J. H.**	**Minneapolis**
§Simonson, D. B.	Minneapolis
Simpson, E. D.	Minneapolis
Sinykin, M. B.	**Minneapolis**
Siperstein, D. M.	**Minneapolis**
Sisterman, T. J.	Minneapolis
†Sivertsen, Andrew	Mound
†§Sivertsen, Ivar	Minneapolis
§**Skjold, A. C.**	**Minneapolis**
§Smisek, F. M.	Minneapolis
Smith, Adam M.	Minneapolis
§**Smith, Archie M.**	**Minneapolis**
§Smith, B. A., Jr.	Minneapolis
§Smith, G. G.	Minneapolis
Smith, H. R.	**Minneapolis**
†**Smith, Margaret I.**	**Minneapolis**
§**Smith, N. M.**	**Minneapolis**
§Smith, N. R.	Minneapolis
§Smith, T. S.	Minneapolis
Soderlind, R. T.	**Minneapolis**
§**Solhaug, S. B.**	**Minneapolis**
§Solvason, H. M.	Minneapolis
§**Spano, J. P.**	**Minneapolis**
§**Spink, W. W.**	**Minneapolis**
†Spratt, C. N.	Minneapolis
§Stahr, A. C.	Hopkins
§**Stanford, C. E.**	**Minneapolis**
§State, David	Minneapolis
§Stein, K. E.	Lakeville
§**Stelter, L. A.**	**Minneapolis**
§Stennes, J. L.	Minneapolis
Stenstrom, Annette	Minneapolis
§**Stewart, R. I.**	**Minneapolis**
‡Stiegler, F. S.	Nuremberg, Germany
§**Stoesser, A. V.**	**Minneapolis**
†**Stomel, Joseph**	**Los Angeles, Calif.**
§Stone, S. P.	Minneapolis
†**Strachauer, A. C.**	**Minneapolis**
Strickler, J. H.	Minneapolis
§Strom, G. W.	Minneapolis
Stromgren, D. T.	**Minneapolis**
§**Stromme, W. B.**	**Minneapolis**
*§Sturre, J. R.	Minneapolis
†§Subby, Walter	Minneapolis
§**Sukov, Marvin**	**Minneapolis**
§Sullivan, R. M.	Minneapolis
Swanson, R. E.	**Minneapolis**
†Swanson, V. F.	Minneapolis
§**Sweetser, H. B., Jr.**	**Minneapolis**
†**Sweetser, H. B., Sr.**	**Minneapolis**
§**Sweetser, T. H.**	**Minneapolis**
†Sweitzer, S. E.	Minneapolis
§†**Swendseen, C. G.**	**Minneapolis**
§**Tangen, G. M.**	**Minneapolis**
Taylor, J. H.	**Minneapolis**
§**Tenner, R. J.**	**Minneapolis**
§**Thomas, G. E.**	**Minneapolis**
†**Thomas, G. H.**	**Minneapolis**
§**Thompson, W. H.**	**Minneapolis**
Thomson, J. M.	**Minneapolis**
§Thorson, S. V.	Minneapolis
§**Thysell, D. M.**	**Minneapolis**
§†Tingdale, A. C.	Minneapolis
§**Tinkham, R. G.**	**Minneapolis**
Titrud, L. A.	**Minneapolis**
§Tobin, J. D.	Minneapolis
Todd, Romona L.	**Minneapolis**
§**Trach, Benedict**	**Minneapolis**
§**Trow, J. E.**	**Minneapolis**
§**Trow, W. H.**	**Minneapolis**
Troxil, Elizabeth B.	**Minneapolis**
§Trueman, H. S.	Minneapolis
§**Tudor, R. B.**	**Minneapolis**
†Tunstead, H. J.	Minneapolis
§**Turnacliff, D. D.**	**St. Paul**
†Twomey, J. E.	Minneapolis
§**Ude, W. H.**	**Minneapolis**
†§Ulrich, H. L.	Minneapolis
Ulvestad, H. S.	Minneapolis
§**Undine, C. A.**	**Minneapolis**
Vik, A. E.	**Minneapolis**
§**Wahlquist, H. F.**	**Minneapolis**
§**Waldron, C. W.**	**Minneapolis**
Walker, S. A.	Minneapolis
§**Wall, C. R.**	**Minneapolis**
§Walsh, F. M.	Minneapolis
§Walsh, W. T.	Minneapolis
Wangensteen, O. H.	**Minneapolis**
Ward, P. A.	**Minneapolis**
§**Watson, C. G.**	**Minneapolis**
Watson, C. J.	Minneapolis
Watson, R. E.	**Minneapolis**
Weaver, M. M.,	Vancouver, B. C., Can.
§**Webb, E. A.**	**Minneapolis**
§**Webb, R. C.**	**Minneapolis**
Webber, R. J.	Minneapolis
§Weisberg, R. J.	Minneapolis
§Wendland, J. P.	Minneapolis
Werner, George	**Minneapolis**
†**West, Catharine C.**	**Minneapolis**
‡Westphal, K. F.	Portland, Ore.
†§Wethall, A. G.	Minneapolis
Wetherby, Macnider	**Minneapolis**
§**Weum, T. W.**	**Minneapolis**
§**White, A. A.**	**Minneapolis**
§**White, S. M.**	**Minneapolis**
§**White, W. D.**	**Minneapolis**
§**Whitesell, L. A.**	**Minneapolis**
§**Widen, W. F.**	**Minneapolis**
†Wilcox, A. E.	Minneapolis
†**Wilder, K. W.**	**Minneapolis**
§**Wilder, R. L.**	**Minneapolis**
§Wilder, R. M., Jr.	Minneapolis
§**Wilken, P. A.**	**Minneapolis**
§†**Willcutt, C. E.**	**Phoenix, Ariz.**
†**Williams, Robert**	**Carthage, Ill.**
Winther, Nora M. C.	**Minneapolis**
§Wipperman, F. F.	Minneapolis
§**Witham, C. A.**	**Minneapolis**
Wittich, F. W.	**Minneapolis**
§**Wohlrabe, A. A.**	**Minneapolis**
Wolf, A. H.	**Minneapolis**
†Wood, R. A.	Minneapolis
Worden, R. E.	Minneapolis
Wright, W. S.	**Minneapolis**
Wyatt, O. S.	**Minneapolis**
Wynne, H. M. N.	**Minneapolis**
§**Ylvisaker, R. S.**	**Minneapolis**
§**Yoerg, O. W.**	**Minneapolis**
§Zaworski, Leo A.	Minneapolis
Zierold, A. A.	**Minneapolis**
§**Zinter, F. A.**	**Minneapolis**
§Ziskin, Thomas	Minneapolis

KANDIYOHI-SWIFT-MEEKER COUNTY MEDICAL SOCIETY

Regular meetings, third Thursday of month
Annual meeting, December
Number of Members: 47

President

Wilmot, C. A.	Litchfield

Secretary

Jacobs, D. L.	Willmar

Anderson, R. E.	**Willmar**
Arnson, J. M.	**Benson**
Bosland, H. G.	**Willmar**
*Branton, B. J.	Willmar
Chadbourn, W. A.	Litchfield
†**Daignault, Oscar**	**Benson**
†Danielson, K. A.	Litchfield
Danielson, Lennox	**Litchfield**
Dille, D. E.	**Litchfield**
Eberley, T. S.	**Benson**
Fisher, J. M.	**Willmar**
Frederickson, Alice C.	**Willmar**
Frederickson, G. U. Y.	**Willmar**
Frisch, F. P.	**Willmar**
†Frost, E. H.	Willmar
Giere, S. W.	**Benson**
Gilman, L. C.	**Willmar**
Griffin, R. P.	**Benson**
Herbst, R. F.	Willmar
Hodapp, R. J.	**Willmar**
Hodapp, R. V.	Willmar
Jacobs, D. L.	Willmar
§**Jacobs, J. C.**	Willmar
Johnson, Hans	**Kerkhoven**
Kaufman, E. J.	**Appleton**
Kelley, K. J.	Litchfield
Lindley, S. B.	**Willmar**
Macklin, W. E., Jr.	Willmar
McCarthy, Austin M.	Willmar
Michels, R. P.	Willmar
Nelson, K. L.	Balaton
O'Connor, D. C.	**Eden Valley**
Penhall, F. W.	**Willmar**
Peterson, Willard E.	**Willmar**
Porter, O. M.	**Willmar**
Proeschel, R. K.	**Willmar**
Ripple, R. J.	**New London**
Rygh, Harold N.	**Atwater**
Sellers, G. K.	**Dassel**
Solsem, F. N.	**Spicer**
*†Scofield, C. L.	Benson
Sutherland, W. H.	Benson
*Telford, V. J.	Litchfield
Tyler, S. H.	**Raymond**
Verby, J. E., Jr.	Litchfield
Wagenknecht, T. W., Jr.	Appleton
Wilmot, C. A.	**Litchfield**
Wilmot, H. E.	**Litchfield**

LYON-LINCOLN COUNTY MEDICAL SOCIETY

Regular meetings, first Tuesday of month
Annual meeting, last Tuesday in October
Number of Members: 28

President

Eckdale, J. E.	Marshall

Secretary

Purvis, G. H.	Hendricks

Akester, Ward	**Fergus Falls**
Benson, L. M.	**Tracy**
Eckdale, J. E.	**Marshall**
Ferguson, W. C.	**Walnut Grove**
Ford, B. C.	Marshall
Friedell, George	**Ivanhoe**
†Grav, F. D.	Marshall
Hedenstrom, P. C.	**Marshall**
Helferty, J. K.	**Minneapolis**
Hermanson, P. E.	Hendricks
Hoidale, A. D.	Tracy
Johnson, C. P.	**Tyler**
Kreuzer, T. C.	**Marshall**
Monson, L. J.	Canby
Murphy, J. E.	**Marshall**
Peterson, K. A.	**Marshall**
Purves, G. H.	**Hendricks**
Remsberg, R. R.	**Tracy**
†**Robertson, J. B.**	**Minneapolis**
†**Sanderson, E. T.**	**Alexandria**
Sether, A. F.	**Ruthton**
Smith, L. A.	Tyler
Thompson, C. O.	**Hendricks**
§**Vadheim, A. L.**	**Tyler**
§**Valentine, W. H.**	**Tracy**
Wolstan, S. D.	Minneota
Workman, W. G.	**Tracy**
Yaeger, W. W.	**Marshall**

McLEOD COUNTY MEDICAL SOCIETY

Regular meeting, third Thursday of month
Annual meeting, January
Number of Members: 24

President

Neumaier, Arthur	Glencoe

Secretary

Kallestad, L. L.	Brownton

Brink, D. M.	Hutchinson
†Clement, J. B.	Lester Prairie
§Goss, H. C.	Glencoe
Goss, Martha D.	Glencoe
§Gridley, J. W.	Glencoe
§Griebe, Grant	Norwood
§Holm, H. H.	Glencoe
§Jensen, A. M.	Brownton
§Kallestad, L. L.	Brownton
§Klima, W. W.	Stewart
Leitschuh, T. H.	Winsted
§Lippmann, E. W.	Hutchinson
§McMahon, M. J.	Green Isle
§Neumaier, Arthur	Glencoe
Peterson, K. H.	Hutchinson
Sahr, W. G.	Hutchinson
Scholpp, O. W.	Hutchinson
§Selmo, J. D.	Norwood
§Sheppard, C. G.	Hutchinson
†Shrader, E. E.	Watertown
§Smith, G. R.	Hutchinson
§Smyth, J. J.	Lester Prairie
§Truesdale, C. W.	Glencoe
Trutna, T. J.	Silver Lake

MOWER COUNTY MEDICAL SOCIETY

Regular meeting, last Thursday of each month
Annual meeting, December
Number of Members: 29

President

Peterson, S. C.	Austin

Secretary

Rosenthal, F. H.	Austin

§Anderson, D. P., Jr.	Austin
§Barber, Tracy E.	Austin
Bellomo, John	Grand Meadows
§Cronwell, B. J.	Austin
Fisch, H. M.	Austin
§Flanagan, L. G.	Austin
§Grise, W. B.	Austin
Havens, J. G. W.	Austin
†Hegge, O. H.	Austin
§Hegge, R. S.	Austin
†Henslin, A. E.	Cresco, Iowa
§Hertel, G. E.	Austin
§Leck, P. C.	Austin
§Lommen, P. A.	Austin
§McKenna, J. K.	Austin
Melzer, G. R.	Lyle
Morse, M. P.	Le Roy
§Peterson, S. C.	Austin
§Robertson, P. A.	Austin
§Rosenthal, F. H.	Austin
§Sargent, E. C.	Austin
Schneider, P. J.	Adams
†§Schottler, G. J.	Dexter
§Seery, T. M.	Austin
§Sheedy, C. L.	Austin
Twiggs, L. F.	Austin
Van Cleve, H. P., Jr.	Austin
§Wilson, F. C.	Austin
§Wright, R. R.	Austin

NICOLLET-LE SUEUR COUNTY MEDICAL SOCIETY

Regular meetings, none
Annual meeting, December
Number of Members: 29

President

Grimes, B. P.	St. Peter

Secretary

Wilcox, G. C.	St. Peter

†Aitkens, H. B.	LeCenter
Bodaski, A. A.	LeCenter
§Branham, D. S.	St. Peter
§Covell, W. W.	St. Peter
§Curtis, R. A.	LeCenter
§Dahlstet, J. P.	North Mankato
§Ericson, Swan	Le Sueur
§Giroux, A. A.	North Mankato
§Grimes, B. P.	St. Peter
§Hiniker, P. J.	Le Sueur
§Johnson, H. C.	North Mankato
Kabrick, O. A.	St. Peter
§Larson, M. H.	Nicollet
§Lenander, M. E.	St. Peter
§Nilson, H. J.	North Mankato
§Olmanson, E. G.	St. Peter
§Olson, D. C.	Gaylord
Orwoll, H. S.	St. Peter
Rossen, R. X.	Hastings
§Rudie, C. N.	St. Peter
Schulberg, V. A.	Arlington
†Sherman, A. G.	Minneapolis
§Sjostrom, L. E.	St. Peter
§Sonnesyn, N. N.	Le Sueur
§Stoeckmann, A. E.	St. Peter
Strathern, C. S.	St. Peter
†Strathern, F. P.	St. Peter
§Traxler, J. F.	Henderson
§Wilcox, G. C.	St. Peter
§Wohlrabe, C. F.	North Mankato

OLMSTED-HOUSTON-FILLMORE-DODGE COUNTY MEDICAL SOCIETY

Regular meetings, first Wednesday every odd month
Annual meeting, November
Number of Members: 650

President

Heck, F. J.	Rochester

Secretary

Carryer, H. M.	Rochester

§Ackerman, R. F.	Memphis, Tenn.
§Adams, Neil D.	Rochester
§Adams, R. C.	Rochester
§Adson, A. W.	Rochester
Affeldt, D. E.	Kasson
§Ahlfs, J. J.	Caledonia
§Albers, Donald D.	Rochester
§Alcott, D. L.	Rochester
*Aldrich, C. A.	Rochester
§Allen, E. V.	Rochester
§Alvarez, W. C.	Rochester
†Amberg, Samuel	Rochester
§Andersen, H. A.	Rochester
§Anderson, A. D.	Rochester
§Anderson, A. S.	Rochester
Anderson, Charles D.	Chicago, Ill.
§Anderson, James	Rochester
§Anderson, M. J.	Rochester
§Anderson, M. W.	Rochester
§Anderson, Robert L.	Rochester
§Anderson, Thomas Page	Rochester
§Anthony, Walter P.	Rochester
§Arata, J. E.	Rochester
§Arnesen, J. F.	Rochester
§Ashe, W. M.	San Francisco, Calif.
§Austin, G. W.	Rochester
§Baggenstoss, A. H.	Rochester
§Bailey, A. A.	Rochester
§Bair, H. L.	Rochester
§Baker, G. S.	Rochester
§Baker, H. R.	Hayfield
§Baker, R. L.	Hayfield
¶Balfour, D. C.	Rochester
§Balfour, D. C., Jr.	Rochester
§Balfour, W. M.	Rochester
§Ball, Warren P.	Rochester
§Banner, E. A.	Rochester
§Bargen, J. A.	Rochester
§Barker, N. W.	Rochester
§Barnes, A. R.	Rochester
§Bartholomew, L. G.	Rochester
§Baskin, R. H.	Rochester
§Bastron, J. A.	Rochester
§Bateman, J. G.	Rochester
§Bayrd, F. D.	Rochester
§Beahrs, O. H.	Rochester
§Beard, E. F.	Rochester
§Beck, W. W., Jr.	Salt Lake City, Utah
Becker, S. W., Jr.	Rochester
Beeler, J. W.	Rochester
§Begley, J. W., Jr.	Rochester
§Belding, H. H., III	Rochester
§Bellegie, N. J.	Rochester
¶Belote, G. B.	Caledonia
§Benedict, W. L.	Rochester
§Bennett, H. S.	Rochester
§Bennett, W. A.	Rochester
*Bentson, J. H.	Rochester
§Berens, James	Rochester
§Berkman, D. M.	Rochester
§Berkman, J. M.	Rochester
§Bernatz, P. E.	Rochester
§Betts, R. A.	Seattle, Wash
§Bickel, W. H.	Rochester
Bigelow, C. E.	Dodge Center
§Bilka, P. J.	Rochester
§Black, B. M.	Rochester
§Blackburn, C. M.	Rochester
§Block, M. A.	Rochester
§Blunt, C. P., III	Lynchburg, Va.
§Bolger, J. V., Jr.	Milwaukee, Wis.
‡Boothby, W. M.	Rochester
§Boucek, Robert J.	Rochester
¶Bowing, H. H.	Rochester
§Boyd, D. A.	Rochester
¶Braasch, W. F.	Rochester
§Braceland, F. J.	Rochester
§Brandenburg, R. O.	Rochester
§Bresette, J. E.	Rochester
§Brickley, P. M.	Rochester
§Broders, A. C.	Rochester
§Brown, A. E.	Rochester
§Brown, H. A.	Rochester
§Brown, J. R.	Rochester
§Brown, P. W.	Rochester
§Brunsting, L. A.	Rochester
§Brzustowicz, R. J.	Rochester
§Buffmire, D. K.	Rochester
§Buie, Louis A.	Rochester
§Burchell, H. B.	Rochester
§Burgert, E. O., Jr.	Rochester
§Burgess, H. M.	Rochester
§Burke, E. C.	Rochester
Bush, R. P.	Minneapolis
§Butin, J. W.	Rochester
§Butler, D. B.	Rochester
§Butt, H. R.	Rochester
§Cain, J. C.	Rochester
§Camp, J. D.	Rochester
§Campbell, D. C.	Rochester
*§Cannon, B. W.	Memphis, Tenn.
§Carey, J. M.	Rochester
§Carlander, L. W., Jr.,	Rochester
§Carlisle, J. C.	Rochester
Carpenter, G. T.	Rochester
§Carr, D. T.	Rochester
§Carroll, T. T.	Rochester
§Carryer H. M.	Rochester
Cashin, J. C.	Rochester
Chance, D. P.	Rochester
§Childs, D. S., Jr.	Rochester
§Christensen, N. A.	Rochester
§Christie, D. P.	Rochester
§Christoferson, L. A.	Rochester
§Clagett, O. T.	Rochester
Clark, L. W.	Spring Valley
§Clark, P. L., III	Rochester
Clifton, T. A.	Chatfield
§Colby, M. Y., Jr.	Rochester
Cole, J. P.	Rochester
§Comfort, M. W.	Rochester
§Cook, E. N.	Rochester
§Cooley, J. C.	Rochester
§Cooper, I. S.	Rochester
§Cooper, Talbert	Rochester

§Corbin, K. B. ...... Rochester
§Corcoran, C. E. ...... Chicago, Ill.
§Counseller, V. S. ...... Rochester
§Coventry, M. B. ...... Rochester
§Craig, W. McK. ...... Rochester
§Crehan, E. L. ...... Rochester
¶Crenshaw, J. L. ...... Rochester
§Crenshaw, J. L., Jr. ...... Rochester
§Crumpacker, Edgar ...... Rochester
§Curtiss, R. K. ...... Rochester

§Dahlin, D. C. ...... Rochester
§Daugherty, G. W. ...... Rochester
§Davis, A. C. ...... Rochester
Davis, I. G. ...... Rushford
§Davis, G. D. ...... Rochester
§Davis, R. M. ...... Rochester
§Davis, R. E. ...... Rochester
Day, L. A. ...... St. Paul
§Dearing, W. H., Jr. ...... Rochester
§Decker, D. G. ...... Rochester
§Dederick, G. F., Jr. ...... Rochester
DeForest, R. E. ...... Rochester
Devine, K. D. ...... Rochester
§Devney, J. W. ...... Rochester
§DeWeerd, J. H. ...... Rochester
§Didcoct, J. W. ...... Rochester
§Diessner, G. R. ...... Rochester
§Dillard, P. G., Jr. ...... Rochester
§Dixon, C. F. ...... Rochester
§Dockerty, M. B. ...... Rochester
§Dodge, H. W., Jr. ...... Rochester
§Dodge, Mark ...... Rochester
Dolder, F. C. ...... Eyota
§Donoghue, F. E. ...... Rochester
§Dornberger, G. R. ...... Rochester
§Douglass, B. E. ...... Rochester
§Doust, W. C. ...... Rochester
†Drake, F. A. ...... Lanesboro
§Drescher, E. P. ...... Berkeley, Calif.
¶Drips, Della G. ...... Rochester
§Dry, T. J. ...... Rochester
§Duncan, D. K. ...... Rochester
§Dunlap, R. W. ...... Rochester
§DuShane, J. W. ...... Rochester
§Dworetzky, Murray ...... Rochester

§Earnest, Franklin, III .. Toledo, Ohio
§Eaton, L. M. ...... Rochester
§Eby, Lee G. ...... Rochester
§Eckstam, E. E. ...... Rochester
Edwards, J. E. ...... Rochester
§Elkins, E. C. ...... Rochester
§Elliott, J. A., Jr. ...... Rochester
§Ellis, E. J. ...... Rochester
§Ellis, F. H. ...... Rochester
§Emmett, J. L. ...... Rochester
§Engel, J. P. ...... Rochester
Epperson, D. P. ...... Rochester
§Erich, J. B. ...... Rochester
§Erickson, D. J. ...... Rochester
Esser, R. A. ...... Rochester
§Estes, J. E. ...... Rochester
¶Eusterman, G. B. ...... Rochester
†Evarts, A. B. ...... Rochester
§Eyster, W. H., Jr. ...... Rochester

§Faber, J. E. ...... Rochester
§Falsetti, F. P. ...... Rochester
§Faulconer, A., Jr. ...... Rochester
§Faulkner, J. W. ...... Rochester
§Ferris, D. O. ...... Rochester
§Figi, F. A. ...... Rochester
§Fisher, C. E. ...... Rochester
§Fitzpatrick, T. B. ...... Rochester
§Flautt, J. R., Jr. .... Louisville, Ky.
Foss, E. L. ...... Rochester
Foulk, W. T., Jr. ...... Rochester
§Frank, L. M. ...... Rochester
§Freeman, J. G. ...... Rochester
§Fricke, R. E. ...... Rochester
§Fricke, R. W. ...... Rochester
§Fuller, B. F., Jr. ...... Rochester
§Fuller, J. ...... Rochester

§†Gambill, C. M. ...... Rochester
§Gambill, E. E. ...... Rochester
Gastineau, C. F. ...... Rochester
Geraci, J. E. ...... Rochester
§Ghormley, K. O. ...... Rochester
§Ghormley, R. K. ...... Rochester
¶Giffin, H. Z. ...... Rochester
Giffin, Mary E. ...... Rochester
§Gifford, R. W., Jr. ...... Rochester
§Gilbert, L. W. ...... Rochester
§Goldstein, N. P. ...... Rochester
§Good, C. A., Jr. ...... Rochester
Goodlad, J. H. ...... Rochester
§Graham, G. G. ...... Rochester
Gramse, A. E. .... Springfield, Mass.
§Gray, H. K. ...... Rochester

Greene, L. F. ...... Rochester
Griffin, G. D. J., Jr. ...... Rochester
§Griffith, E. R. ...... Rochester
§Grindlay, J. H. ...... Rochester
§Groom, J. J. ...... Rochester
§Gross, J. B. ...... Rochester
§Guernsey, D. E. ...... Rochester

Habein, H. C. ...... Rochester
§Hagedorn, A. B. ...... Rochester
§Haines, S. F. ...... Rochester
§Hall, B. E. ...... Rochester
§Hallberg, O. E. ...... Rochester
¶Hallenbeck, D. F. ...... Rochester
§Hallenbeck, G. A. ...... Rochester
Hanlon, D. G. ...... Rochester
§Hanson, H. H. ...... Rochester
§Hanson, N. O. ...... Rochester
§Hargraves, M. M. ...... Rochester
Harnagel, E. E. ...... Rochester
§Harrington, S. W. ...... Rochester
§Harris, L. E. ...... Rochester
§Hartman, H. R. ...... Rochester
§Hattox, J. S. ...... Rochester
§Hauch, E. W. ...... Rochester
§Havens, F. Z. ...... Rochester
§Hayes, D. W. ...... Rochester
§Hayles, A. B. ...... Lincoln, Nebr.
§Haynes, Allan ...... Rochester
§Heck, F. J. ...... Rochester
§Heck, W. E. ...... Rochester
†Heilman, D. H. ...... Rochester
Heilman, F. R. ...... Rochester
†Helland, G. M. ...... Spring Grove
§†Helland, J. W. ...... Spring Grove
¶Helmholz, H. F. ...... Rochester
‡Hempstead, B. E. ...... Rochester
§Hench, P. S. ...... Rochester
§Henderson, E. D. ...... Rochester
§Henderson, J. W. ...... Rochester
Henderson, M. S. ...... Rochester
Hennessy, Mary E. ..
Muskegon Heights, Mich
§Herrell, W. E. ...... Rochester
§Hetherington, J. A., Indianapolis, Ind.
Hewitt, Edith S. ...... Rochester
†Hewitt, R. M. ...... Rochester
†Heyerdale, O. C. ...... Rochester
§Hightower, N. C. ...... Rochester
§Hildebrand, C. H. ...... Seattle, Wash.
§Hill, J. R. ...... Rochester
Hills, O. W. ...... Rochester
§Hilsabeck, J. R. ...... Rochester
§Hines, C. R., Jr. ...... Rochester
§Hines, E. A., Jr. ...... Rochester
§Hodgson, C. H. ...... Rochester
§Hodgson, J. R. ...... Rochester
Hoffman, M. S. ...... Rochester
§Hogben, C. A. ...... Rochester
Holland, C. R. ...... Rochester
§Hollenhorst, R. W. ...... Rochester
§Holman, C. B. ...... Rochester
§Hood, R. T. ...... Rochester
Horan, M. J., Jr. .. New York, N. Y.
§Horton, B. T. ...... Rochester
§Howell, L. P. ...... Rochester
§Hubler, W. L. ...... Rochester
§Hugenberg, W. C. ...... Rochester
Huizenga, K. A. ...... Rochester
§Hunt, A. B. ...... Rochester
§Hunter, J. S., Jr. ...... Rochester
§Hunter, R. C. ...... Rochester

§Ivins, J. C. ...... Rochester
Ivy, J. H. ...... Rochester

§Jackman, R. J. ...... Rochester
§Jackson, H. S. ...... Richmond, Va.
§Jamison, R. W. .. Walla Walla, Wash.
§Jampolis, R. W. ...... Rochester
§Janes, J. M. ...... Rochester
§Jarrett, P. S. ...... Rochester
§Jennings, D. T. ...... Rochester
§Jensen, G. L. ...... Rochester
Jeub, R. P. ...... Minneapolis
Johnson, A. B., II ...... Rochester
Johnson, A. M. ...... Rochester
§Johnson, C. E. ...... Rochester
Johnson, D. A. ...... Rochester
Johnson, E. W. ...... Rochester
§Johnson, H. A. ...... Rochester
§Johnson, H. W. ...... Rochester
§Johnson, M. I. ...... Rochester
Johnson, R. B. ...... Lanesboro
§Jones, G. W. ...... Rochester
§Jordan, R. A. ...... Rochester
§Josselson, A. J. ...... Rochester
Joyce, G. L. ...... Rochester
§Joyce, G. T. ...... Rochester
§Judd, E. S., Jr. ...... Rochester

§Kaplan, J. H. ...... Rochester

Keates, A. E. ...... Rochester
§Keating, F. R., Jr. ...... Rochester
§Keating, J. U. ...... Rochester
§Keith, H. M. ...... Rochester
§Keith, N. M. ...... Rochester
§Kelley, E. P. ...... Rochester
Kelly, A. H. ...... Rochester
§Kelsey, J. R. ...... Rochester
§Kennedy, R. L. J. ...... Rochester
Kennedy, T. A. ...... Rochester
§Kernohan, J. W. ...... Rochester
§Kiely, W. F. ...... Rochester
§Kierland, R. R. ...... Rochester
Kimbrough, R. F. ...... Rochester
§Kirby, T. J., Jr. ...... Rochester
§Kirklin, B. R. ...... Rochester
§Kirklin, J. W. ...... Rochester
§Kleckner, M. S., Jr. ...... Rochester
Knight, C. D. ...... Rochester
§Knisely, R. M. ...... Rochester
§Knutson, J. R. B. ...... Rochester
§Knutson, L. A. ...... Spring Grove
§Knutson, R. C. ...... Rochester
§Koelsche, G. A. ...... Rochester
§Koza, D. W. ...... Rochester
§Krakowka, G. F. ...... Rochester
§Krusen, E. M., Jr. ...... Rochester
Krusen, F. H. ...... Rochester
§Kulwin, M. H. ...... Rochester

§Kvale, W. F. ...... Rochester
§Lake, C. F. ...... Rochester
§Lamp, C. B., Jr. ...... Rochester
§Lang, C. M. ...... Rochester
¶Lannin, J. C. ...... Mabel
§Lay, C. L. ...... Rochester
§Leary, W. V. ...... Rochester
§Leddy, E. T. ...... Rochester
Leden, U. M. ...... Rochester
§Lee, M. J. ...... Rochester
§Lemon, W. E. ...... Rochester
§†Lemon, W. S. ...... Rochester
Lick, L. C. ...... Rochester
§Lillie, H. I. ...... Rochester
§Lillie, J. C. ...... Rochester
§Lillie, W. I. ...... Rochester
§Lipscomb, P. R. ...... Rochester
§Litin, E. M. ...... Rochester
§Livermore, G. R., Jr. ...... Rochester
Locke, William ...... Boston, Mass.
§Lofgren, K. A. ...... Rochester
¶Logan, A. H. ...... Rochester
§Logan, G. B. ...... Rochester
§Longley, J. R. ...... Rochester
§Longo, V. J. ...... Rochester
§Love, J. G. ...... Rochester
§Lowman, E. W. ...... Rochester
§Lowy, Alexander, Jr. ...... Rocehster
§Lucas, J. E. ...... Rochester
§Lundy, J. S. ...... Rochester
§Luttgens, W. F. ...... Rochester

§MacCarty, C. S. ...... Rochester
†MacCarty, W. C. ...... Rochester
§MacFarlane, E. B. ...... Rochester
§MacLean, A. R. ...... Rochester
§Magath, T. B. ...... Rochester
§Maino, V. J. ...... Rochester
§Mankin, H. W. ...... Rochester
§†Mann, F. C. ...... Rochester
Mann, Frank D. ...... Rochester
§Markle, G. B., IV ...... Rochester
§Marshall, T. M. ...... Rochester
Martens, T. G. ...... Rochester
§Martin, G. M. ...... Rochester
§Martin, W. J. ...... Rochester
§Masson, D. M. ...... Rochester
¶Masson, J. C. ...... Rochester
§Masson, J. K. ...... Rochester
§Maxiener, S. R., Jr. ...... Rochester
§Mayo, C. W. ...... Rochester
§Maytum, C. K. ...... Rochester
§McBean, J. B. ...... Rochester
§McBurney, R. P. ...... Rochester
§McConahey, W. M., Jr. ...... Rochester
McCorkle, J. K. ...... Rochester
§McCormack, L. J. ...... Rochester
§McDonald, J. R. ...... Rochester
§McElin, T. W. ...... Evanston, Ill.
McIntire, S. F. ...... Rochester
McKaig, C. B. ...... Pine Island
§McMahon, J. M. .. New Orleans, La.
McMillan, J. T. .. Des Moines, Iowa
§McNaughton, R. A. ...... Rochester
§McNeil, J. I. ...... Rochester
McVay, J. R., Jr. ...... Rochester
§McWhorter, H. E. ...... Rochester
§Meadows, E. R. ... Birmingham, Ala.
§Merrill, J. G. ...... Littleton, Colo.
§Merritt, W. A. ...... Rochester

¶Meyerding, H. W. .... Rochester
§Milburn, G. B. .... Rochester
Miller, E. M. .... Rochester
Miller, J. R. .... Fresno, Calif.
§Miller, R. D. .... Rochester
§Milnar, F. J. .... St. Paul
§Mills, S. D. .... Rochester
§Moersch, F. P. .... Rochester
§Moersch, H. J. .... Rochester
§Moersch, R. U. .... Rochester
§Monsour, K. J. .... Rochester
§Montgomery, Hamilton .... Rochester
§Morgan, E. H. .... Rocehster
§Morlock, C. G. .... Rochester
Morris, C. R. .... Rochester
§Morrison, R. W. .... Rochester
§Morrow, R. P., Jr. .... Rochester
§Morton, G. H. .... Rochester
Mussey, Mary E. .... Rochester
§Mussey, R. D., Jr. .... Rochester
§Mussey, W. C. .... Rochester
§Myers, T. T. .... Rochester
§Myers, W. P. L. .... Rochester

§Nachtwey, R. A. .... Lansing, Iowa
Nehring, J. P. .... Preston
Nelson, C. G. .... Harmony
Nelson, P. A. .... Rochester
§New, G. B. .... Rochester
§Nichols, D. R. .... Rochester
§Nicholson, J. W., III .... Rochester
Norris, N. T. .... Caledonia
Norval, M. A. .... Rochester
§Nowak, D. J. .... Rochester

§Odel, H. M. .... Rochester
§O'Cain, R. K. .... Rochester
§O'Leary, P. A. .... Rochester
§Olsen, A. M. .... Rochester
Olson, E. A. .... Pine Island
Olson, G. E. .... West Concord
§Olson, S. W. .... Chicago, Ill.
Onsgard, L. K. .... Houston
§Osborn, J. E. .... Rochester
§O'Saughnessy, E. J. .... Rochester
§Osterholm, R. S. .... Rochester
§Owen, C. A., Jr. .... Rochester
§Owen, H. W. .... Rochester

§Painter, R. C. .... Grand Forks, N. D.
§Parker, H. L. .... Rochester
§Parker, R. L. .... Rochester
Parkhill, Edith M. .... Rochester
§Parkin, T. W. .... Rochester
Patton, J. M. .... Rochester
§Patton, Matthew M., Jr. .... Rochester
§Paulson, G. S. .... Rochester
§Paulson, J. A. .... Rochester
§Peabody, H. D., Jr. .... Rochester
Pease, Gertrude L. .... Rochester
§Pemberton, J. deJ. .... Rochester
§Pender, J. W. .... Rochester
§Perry, Harold .... Rochester
Peters, G. A. .... Rochester
Petersen, M. C. .... Rochester
Phares, W. S. .... Rochester
¶Piper, M. C. .... Rochester
§Polley, H. F. .... Rochester
§Pool, T. L. .... Rochester
§Poore, T. N. .... Rochester
*Popp, W. C. .... Rochester
§Porter, G. E. .... Rochester
§Post, D. B. .... Rochester
Powers, F. H. .... Rochester
§Prangen, A. D. .... Rochester
§Pratt, J. H. .... Rochester
§Prickman, L. E. .... Rochester
§Pridgen, J. E. .... Rochester
§Priestley, J. T. .... Rochester
§Prough, W. A. .... Ontario, Calif.
§Pruitt, R. D. .... Rochester
§Pugh, D. G. .... Rochester
Pyle, M. M. .... Cannon Falls

§Rae, J. W., Jr. .... Ann Arbor, Mich.
§Ragsdale, W. E., Jr. .... Rochester
§Rall, J. E. .... New York, N. Y.
§Ralston, D. E. .... Rochester
§Randall, L. M. .... Rochester
§Randall, R. V. .... Rochester
§Randall, W. H. .... Rochester
§Rasmussen, W. C. .... Rochester
§Ratke, H. V. .... Rochester
§Reiter, R. A. .... Rochester
§ReMine, W. H., Jr. .... Rochester
Retter, Richard .... Madison, Wis.
§Reynolds, J. L. .... Rochester
Rice, R. G. .... Minneapolis
§Riddell, R. V. .... Rochester
§Ridley, Roger W. .... Rochester
§Ripley, H. R. .... Rochester
Risser, A. F. .... Stewartville
§Robinson, A. W. .... Rochester
Rogne, W. G. .... Spring Grove
§Rome, H. P. .... Rochester
§Rooke, E. D. .... Rochester
§Rosin, J. D. .... Rochester
Rotnem, O. M. .... Mabel
§Routley, E. F. .... Rochester
§Rovelstad, R. A. .... Rochester
Rucker, C. W. .... Rochester
§Ruff, C. C. .... Rochester
Rushton, J. G. .... Rochester
§Rydell, J. R. .... Rochester
§Rynearson, E. H. .... Rochester

§Salassa, R. M. .... Rochester
‡Sanford, A. H. .... Rochester
§Sauer, W. G. .... Rochester
§Saxon, R. F., Jr. .... Rochester
§Saylor, H. L., Jr. .... Huron, S. D.
Sayre, G. P. .... Rochester
Scanlon, P. W. .... Rochester
§Scheifley, C. H. .... Rochester
§Scherbel, A. L. .... Rochester
§Schmidt, H. W. .... Rochester
§Scholz, D. A. .... Rochester
§Schweppe, J. S. .... Rochester
§Scribner, B. H. .... Rochester
§Scudamore, H. H. .... Rochester
§Seagle, J. B. .... Rochester
Seale, Ruth A. .... Rochester
Seebach, Lydia M. .... Rochester
§Seldon, T. H. .... Rochester
§Seybold, W. D. .... Rochester
Shands, W. C. .... Rochester
§Shick, R. M. .... Rochester
Shonyo, E. S. .... Milwaukee, Wis.
§Siemon, Glenn .... Rochester
§Simonton, K. M. .... Rochester
Skaug, H. M. .... Chatfield
Skillern, P. G., Jr. .... Rochester
§Skroch, E. E. .... Rochester
§Sloan, W. P., Jr. .... Rochester
§Slocumb, C. H. .... Rochester
¶Smith, F. L. .... Rochester
§Smith, F. R. .... Rochester
§Smith, H. L. .... Rochester
§Smith, L. A. .... Rochester
§Smith, N. D. .... Rochester
§Smith, O. O., Jr. .... Independence, Va.
§Smith, P. L. .... Rochester
§Soule, E. H. .... Rochester
§Spaulding, C. A. .... Rochester
§Spear, I. M. .... Rochester
Spear, R. C. .... Rochester
§Spence, B. J., Jr. .... Rochester
Spencer, B. J. .... Rochester
§Spencer, J. R. .... Rochester
§Spock, B. M. .... Rochester
§Sponsel, K. H. .... Rochester
§Sprague, R. G. .... Rochester
§Spray, P. .... Rochester
§Stapley, L. A., Jr. .... Rochester
§Stark, D. B. .... Rochester
Starks, W. O. .... Rochester
§Stauffer, M. H. .... Rochester
§Stickney, J. M. .... Rochester
§Stilwell, G. G. .... Rochester
Stinson, J. C., Jr. .... Rochester
§Storrs, R. P. .... Rochester
§Storsteen, K. A. .... Rochester
Stowe, H. R. .... Rochester
§Stroebel, C. F., Jr. .... Rochester
§†Sutherland, C. G. .... Rochester
§Svien, H. J. .... Rochester

§Takaro, Timothy .... Rochester
§Taylor, A. B. .... Rochester
§Taylor, B. E. .... Rochester
§Taylor, R. W., Jr. .... Rochester
Teitgen, R. E. .... Rochester
§Thelen, E. P. .... Rochester
§Thompson, G. J. .... Rochester
§Tillisch, J. H. .... Rochester
§Tobin, J. R., Jr. .... Rochester
§Tondreau, R. L. .... Rochester
§Turnbull, T. .... Rochester

§Uihlein, Alfred .... Rochester
§Underdahl, L. O. .... Rochester
§Upson, Mark, Jr. .... Rochester
§Uzmann, J. W. .... Rochester

§Vadheim, L. A. .... Rochester
§Van Herik, Martin .... Rochester
§Van Patter, Ward .... Rochester
§Vaughn, L. D. .... Rochester

§Wagener, H. P. .... Rochester
§Wakefield, E. G. .... Rochester
§†Wakim, K. G. .... Rochester
§Walsh, M. N. .... Rochester
§Walters, Waltman .... Rochester
Wang, Jun-Chuan .... Minneapolis
§Ward, Louis E. .... Rochester
§Watkins, C. H. .... Rochester
§Watson, J. B. .... Rochester
§Watson, J. R. .... Rochester
§Waugh, J. M. .... Rochester
§Webb, J. H. .... Rochester
§Weber, H. M. .... Rochester
§Weed, L. A. .... Rochester
§Weir, J. F. .... Rochester
§Wellman, W. E. .... Rochester
Wellner, T. O. .... Rochester
Wente, H. A. .... Rochester
Westrup, J. E. .... Lanesboro
§Weyand, R. D. .... Rochester
§Whitesell, F. B. .... Rochester
§Wilder, R. M. .... Rochester
§Wilhelm, W. F. .... Rochester
§Williams, H. L., Jr. .... Rochester
†Williams, R. V. .... Rushford
§Willius, F. A. .... Rochester
§Wilson, R. B. .... Rochester
§Winburn, J. R., Jr. .... Rochester
Winchester, E. C. .... Rochester
§Winchester, W. W. .... Rochester
§Wollaeger, E. E. .... Rochester
§Woltman, H. W. .... Rochester
¶Wood, H. G. .... Rochester
§Woolling, K. R. .... Rochester
§Woolner, L. B. .... Rochester

§Young, H. H. .... Rochester

§Zick, L. H. .... Rochester
§Zimmer, F. E. .... Rochester

PARK REGION DISTRICT AND COUNTY MEDICAL SOCIETY

Douglas, Grant, Otter Tail and Wilkin Counties
Regular meetings, every other month
Annual meeting, December
Number of Members: 60

President
Jacobs, G. C. .... Fergus Falls

Secretary
Daehlin, Rolf .... Fergus Falls

Arndt, H. W. .... Detroit Lakes
§Baker, A. C. .... Fergus Falls
Baker, J. L. .... Fergus Falls
§Baker, N. H. .... Fergus Falls
Bergquist, K. E. .... Battle Lake
Bigler, Earl E. .... Perham
Bigler, I. E. .... Perham
§Boline, C. A. .... Battle Lake
§Boyd, L. M. .... Alexandria
†Boysen, Peter .... Austin, Texas
§Burnap, W. L. .... Fergus Falls
Cain, J. H. .... Hoffman
§Carlson, C. E. .... Alexandria
§Clifford, G. W. .... Alexandria
§Combacker, L. C. .... Fergus Falls
Daehlin, Rolf .... Fergus Falls
†Drought, W. W. .... Fergus Falls
§Dwinnell, L. A. .... Fergus Falls
Emerson, E. E. .... Osakis
*Esser, John .... Perham
§Estrem, C. O. .... Fergus Falls
Estrem, R. D. .... Fergus Falls
Geiser, P. M. .... Alexandria
Hanson, E. C. .... New York Mills
Harris, E. S. .... Fergus Falls
§Haskell, A. D. .... Alexandria
§Heiberg, E. A. .... Fergus Falls
Jacobs, G. C. .... Fergus Falls
§Jacobson, C. W. .... Breckenridge
§Kaliher, Howard .... Pelican Rapids
§Kevern, J. L. .... Henning
§Korda, H. A. .... Pelican Rapids
Leibold, H. H. .... Parkers Prairie
§Lewis, A. J. .... Henning
§Lewis, C. W. .... Henning
Love, F. A. .... Carlos
§Lund, C. J. T. .... Fergus Falls
Miller, W. A. .... New York Mills
§Mortensen, N. G. .... Fergus Falls
§Mouritsen, G. J. .... Fergus Falls

§Naegeli, F. A. .... Fergus Falls
Nelson, D. E. .... Alexandria
Nelson, R. A. .... Fergus Falls
§Nelson, W. O. B. .... Fergus Falls
§O'Brien, Louis T. .... Breckenridge
Ostergaard, Erling .... Evansville
Parson, Lillian B. .... Elbow Lake
Parson, L. R. .... Elbow Lake
Patterson, W. L. .... Fergus Falls
§Paulson, T. S. .... Fergus Falls
Randall, A. M. .... Ashby
Reeve, E. T. .... Elbow Lake
Rockwood, P. H. .... Fergus Falls
Satersmoen, Theodore .. Pelican Rapids
§Sather, E. R. .... Alexandria
§Schamber, W. F. .... Parkers Prairie
§Stemsrud, H. L. .... Alexandria
Sutton, H. R. .... Hoffman
§Tanquist, E. J. .... Alexandria
Thompson, H. B. .... St. Cloud
Warner, J. J. .... Perham
§Wasson, L. F. .... Alexandria
†Wray, W. E. .... Campbell

RAMSEY COUNTY MEDICAL SOCIETY

Regular meetings, last Monday in every month excepting June, July, August
Annual meeting, last Monday in January
Number of Members: 436

President

Ogden, Warner .... St. Paul

Secretary

Hilger, L. D. .... St. Paul

§Adair, A. F., Jr. .... St. Paul
§Ahrens, A. E. .... St. Paul
§Ahrens, A. H. .... St. Paul
§Alden, J. F., Jr. .... St. Paul
§Amerongen, W. W. .... St. Paul
Anderson, J. J. .... St. Paul
§Arnquist, A. S. .... St. Paul
§Arny, F. P. .... St. Paul
§Arzt, P. K. .... St. Paul
§Aurelius, J. R. .... St. Paul
§Ausman, C. F. .... St. Paul
§Ausman, D. R. .... St. Paul
§Babb, Frank S. .... St. Paul
§Bacon, D. K. .... St. Paul
*†Bacon, L. C. .... St. Paul
§Balcome, M. M. .... St. Paul
Barnett, J. M. .... St. Paul
§Barry, L. W. .... St. Paul
†Barsness, N. O. N. .... St. Paul
*Barton, J. C. .... Bethesda, Md.
Bauer, E. L. .... St. Paul
§†Beals, Hugh .... St. Paul
§Beech, R. H. .... St. Paul
§Beek, H. O. .... St. Paul
Beer, J. J. .... St. Paul
§Bell, C. C. .... St. Paul
Bellomo, James .... St. Paul
§Benepe, J. L. .... St. Paul
†Bennion, P. H. .... Isway, Mont.
§Bentley, N. P. .... St. Paul
§Bernstein, W. C. .... St. Paul
§Bicek, J. F. .... St. Paul
†Binger, H. E. .... Phoenix, Ariz.
Black, E. J. .... St. Paul
§Bock, R. A. .... St. Paul
Boeckmann, Egil .... St. Paul
§Bolender, H. L. .... St. Paul
Borg, J. F. .... St. Paul
§Bouma, L. R. .... St. Paul
§Brand, G. D. .... St. Paul
Bray, E. R. .... St. Paul
§Briggs, J. F. .... St. Paul
§Broadie, T. E. .... St. Paul
§Brodie, W. D. .... St. Paul
§Brotchner, R. J. .... St. Paul
Brown, J. C. .... St. Paul
Bulinski, T. J. .... St. Paul
§Burch, E. P. .... St. Paul
†Burch, Frank .... St. Paul
Burklund, E. C. .... St. Paul
§Burlingame, David A. .... St. Paul
§Burns, R. M. .... St. Paul
Burton, C. G. .... St. Paul
§Busher, H. H. .... St. Paul
§Cain, C. L. .... St. Paul
Callahan, F. F. .... St. Paul
§Carley, W. A. .... St. Paul
§Carroll, W. C. .... St. Paul
§Chadbourn, C. R. .... St. Paul
§Chatterton, C. C. .... St. Paul
§Christiansen, A. .... St. Paul
§Clark, H. B., Jr. .... Minneapolis
Coddon, W. D. .... St. Paul
Cohen, E. N. .... St. Paul
§Colby, W. L. .... St. Paul
§Cole, W. H. .... St. Paul
†Collie, H. G. .... St. Petersburg, Fla.
§Connolly, C. J. .... St. Paul
§Connor, C. E. .... St. Paul
§Cook, C. K. .... St. Paul
§Cooper, C. C. .... St. Paul
§Countryman, R. S. .... St. Paul
†Cowern, E. W. .... No. St. Paul
§Craig, D. M. .... St. Paul
§Critchfield, L. R. .... St. Paul
Crombie, F. J. .... No. St. Paul
Crowley, J. H. .... St. Paul
Crudo, V. D. .... St. Paul
§Crump, J. W. .... St. Paul
§Culligan, J. M. .... St. Paul
§Culver, L. G. .... St. Paul
*§Dack, L. G. .... St. Paul
†Daugherty, E. B. .... Marine-on-St. Croix
§Davis, E. V. .... St. Paul
Decker, C. H. .... St. Paul
§Dedolph, Karl .... St. Paul
§Derauf, B. I. .... St. Paul
§Deters, D. C. .... St. Paul
†Dickson, T. H. .... St. Paul
Donohue, P. F. .... St. Paul
Dovre, C. M. .... St. Paul
§Drake, C. B. .... St. Paul
§Dunn, J. N. .... St. Paul
§Earl, G. A. .... St. Paul
§Earl, J. R. .... St. Paul
§Edlund, Gustaf .... St. Paul
Edwards, J. W. .... St. Paul
Edwards, Lloyd G. .... St. Paul
§Edwards, T. J. .... St. Paul
§Eginton, C. T. .... St. Paul
Ely, O. S. .... So. St. Paul
§Emerson, E. C. .... St. Paul
§Endress, E. K. .... St. Paul
Enroth, O. E. .... St. Paul
Ernest, G. C. H. .... St. Petersburg, Fla.
§Ersfeld, Murray P. .... St. Paul
†Eshelby, E. C. .... St. Paul
Evert, J. A., Jr. .... St. Paul
†Fahey, E. W. .... St. Paul
Farkas, J. B. .... St. Paul
Fee, J. G. .... St. Paul
Felion, A. J. .... St. Paul
†§Ferguson, J. C. .... St. Paul
§Fessler, H. H. .... St. Paul
Field, A. H. .... Farmington
Fink, D. L. .... St. Paul
Fisher, D. W. .... St. Paul
§Flanagan, H. F. .... St. Paul
§Flannery, H. F. .... St. Paul
Flom, R. P. .... St. Paul
§†Fogarty, C. W. .... St. Paul
Fogarty, C. W., Jr. .... St. Paul
§Fogelberg, E. J. .... St. Paul
§Foley, F. E. B. .... St. Paul
Forsythe, J. R. .... St. Paul
†Freeman, C. D. .... Balsam Lake, Wis.
Freeman, C. D., Jr. .... St. Paul
Freidman, L. L. .... St. Paul
§Fritz, W. L. .... St. Paul
§Froats, C. W. .... St. Paul
Frost, Russell H. .... St. Paul
§Garbrecht, A. W. .... St. Paul
Gardiner, D. G. .... St. Paul
§Gardner, W. P. .... St. Paul
Garrow, D. M. .... St. Paul
*Geer, E. K. .... St. Paul
§Gehlen, J. N. .... St. Paul
§Geist, G. A. .... St. Paul
§Ghent, C. H. .... St. Paul
§Gibbs, E. C. .... St. Paul
*†Gilfillan, J. S. .... St. Paul
Gilkey, S. E. .... St. Paul
§Gillespie, D. R. .... St. Paul
§Gleason, W. A. .... St. Paul
Goldsmith, J. W. .... St. Paul
§Goltz, E. V. .... St. Paul
Goltz, Neill F. .... St. Paul
Grant, H. W. .... St. Paul
§Gratzek, Thomas .... St. Paul
§Grau, R. K. .... St. Paul
Gruenhagen, A. P. .... St. Paul
Hall, H. H. .... St. Paul
§Hammes, E. M. .... St. Paul
§Hammes, E. M., Jr. .... St. Paul
Hammond, J. F. .... St. Paul
§Hanson, H. B. .... St. Paul
§Harmon, G. E. .... St. Paul
§Hartfiel, W. F. .... St. Paul
Hartig, Marjorie .... St. Paul
§Hartley, E. C. .... St. Paul
§Hassett, M. F. .... St. Paul
§Hauser, V. P. .... St. Paul
Havel, R. J. .... Minneapolis
§Hayes, A. F. .... St. Paul
§Heck, W. W. .... St. Paul
Hedenstrom, F. G. .... St. Paul
Henderson, A. J. G. .... St. Paul
Hengstler, W. H. .... St. Paul
§Hensel, C. N. .... St. Paul
Herman, S. M. .... St. Paul
§Heron, R. C. .... St. Paul
§Herrmann, E. T. .... St. Paul
Hertz, M. J. .... St. Paul
§Hilger, A. W. .... St. Paul
†Hilger, D. D. .... St. Paul
Hilger, J. A. .... St. Paul
§Hilger, L. D. .... St. Paul
§Hilker, M. D. .... St. Paul
Hiniker, L. P. .... St. Paul
§Hochfilzer, J. J. .... St. Paul
Hodgson, Jane E. .... St. Paul
Holcomb, O. W. .... St. Paul
§Hollinshead, W. H. .... St. Paul
§Holmen, R. W. .... St. Paul
§Holt, J. E. .... St. Paul
†Hopkins, G. W. .... St. Paul
Howard, M. A. .... St. Paul
Howard, W. S. .... St. Paul
§Howe, N. W. .... St. Paul
§Hullsiek, H. E. .... St. Paul
§Hullsiek, R. B. .... Minneapolis
§Hultgen, W. J. .... St. Paul
Hurwitz, M. M. .... St. Paul
§†Ide, A. W. .... St. Paul
Ikeda, Kano .... St. Paul
Ingerson, C. A. .... St. Paul
Jesion, J. W. .... St. Paul
§Johanson, W. G. .... St. Paul
§Johnson, A. M. .... St. Paul
§Johnson, C. E. .... St. Paul
Jones, E. M. .... St. Paul
§Kamman, G. R. .... St. Paul
Kaplan, D. H. .... St. Paul
Karon, I. M. .... St. Paul
§Kasper, E. M. .... St. Paul
§Katz, L. J. .... Hot Springs, S. D.
†Katzovitz, Hyman .... St. Paul
Keefe, R. E. .... St. Paul
§Kelly, J. V. .... St. Paul
§Kelsey, C. M. .... St. Paul
§Kenefick, E. V. .... St. Paul
§Kennedy, W. A. .... St. Paul
§Kenyon, T. J. .... St. Paul
§Kesting, Herman .... St. Paul
King, G. L. .... St. Paul
§Klein, H. N. .... St. Paul
§Knutson, G. E. .... St. Paul
§Kugler, A. A. .... St. Paul
§Kuske, A. W. .... St. Paul
Kvitrud, Gilbert .... St. Paul
§Lannin, B. G. .... St. Paul
Lannin, D. R. .... St. Paul
Larsen, C. L. .... St. Paul
Larson, Eva-Jane .... St. Paul
Larson, J. T. .... South St. Paul
Larson, K. R. .... St. Paul
Lax, M. H. .... St. Paul
§Leahy, Bartholomew .... St. Paul
§Leavenworth, R. O. .... St. Paul
Lee, N. J. .... St. Paul
§Leick, R. M. .... St. Paul
§Leitch, Archibald .... St. Paul
§Lepak, J. A. .... St. Paul
†Lerche, William .... Cable, Wis.
§Leven, N. L. .... St. Paul
§Leverenz, C. W. .... St. Paul
Levin, Bert .... St. Paul
Levitt, G. X. .... St. Paul
§Lick, C. L. .... St. Paul
§Lien, R. J. .... St. Paul
§Lightbourn, E. L. .... St. Paul
Lilleberg, N. J. .... St. Paul
Lippman, H. S. .... St. Paul
§Loken, S. M. .... St. Paul
Lowe, E. R. .... So. St. Paul
Lowe, T. A. .... So. St. Paul
§Lundholm, A. M. .... St. Paul
§Lynch, F. W. .... St. Paul
§Madden, J. F. .... St. Paul
Madland, Robert S. .... St. Paul
Maertz, W. F. .... St. Paul
§Malerich, J. A. .... St. Paul
Marks, R. W. .... St. Paul
Martin, D. L. .... St. Paul
§Martineau, J. L. .... St. Paul
McAdams, J. B. .... St. Paul
McCain, D. L. .... St. Paul
McCarthy, J. J. .... St. Paul
McCarthy, W. R. .... St. Paul
McClanahan, J. H. .... White Bear
McClanahan, T. S. .... White Bear
§McCloud, C. N. .... St. Paul
§McEwan, Alexander .... St. Paul
†McLaren, Jennette M. .... Minneapolis
§Meade, J. R. .... St. Paul
§Mears, B. J. .... St. Paul

§Medelman, J. P.....St. Paul
Melancon, J. F.....St. Paul
Menold, W. F. .....St. Paul
Merner, T. B. .....Minneapolis
§Meyerding, E. A.....St. Paul
Michienzi, L. J. .....St. Paul
Miller, W. T. .....St. Paul
Miller, Z. R. .....St. Paul
§Moga, J. A.....St. Paul
Molander, H. A.....St. Paul
Moquin, Marie A.....St. Paul
Moren, J. A.....St. Paul
Moriarty, Berenice.....St. Paul
Moriarty, Cecile R.....St. Paul
Muller, A. E. .....North St. Paul
§Muller, R. T.....St. Paul
Murphy, J. T. .....St. Paul
Naegeli, A. E.....St. Paul
§Nash, L. A.....St. Paul
†Nelson, L. A. .....St. Paul
Nimlos, K. O. .....St. Paul
Nimlos, Lenore O. .....St. Paul
§Noble, J. F. .....St. Paul
§Noble, J. L.....St. Paul
Nuebel, C. J. .....Hudson, Wis.
Nye, Katherine A.....St. Paul
Nye, Lillian L.....St. Paul
O'Brien, J. C. .....St. Paul
O'Connor, L. J.....St. Paul
§Ockuly, O. E.....St. Paul
§Ogden, Warner.....St. Paul
§Ohage, Justus .....St. Paul
O'Kane, T. W.....St. Paul
§Olsen, R. L.....St. Paul
Olson, C. A. .....St. Paul
Olson, F. P. .....St. Paul
§O'Reilley, B. E.....St. Paul
§Ostergren, E. W.....St. Paul
§Ouellette, A. J.....St. Paul
§Pearson, F. R.....St. Paul
§Pearson, M. M. .....St. Paul
Pedersen, A. H.....St. Paul
Peterson, D. B.....St. Paul
§Peterson, D. H.....St. Paul
§Peterson, H. O.....St. Paul
§Peterson, J. L. E.....St. Paul
§Plondke, F. J.....St. Paul
Plotke, H. L. .....St. Paul
Polski, P. G. .....South St. Paul
§Prendergast, H. J.....St. Paul
Quattlebaum, F. W.....St Paul
Radabaugh, R. C.....Hastings
§Ralph, J. R.....St. Paul
†Ramsey, W. R.....St. Paul
Rasmussen, R. C. .....St. Paul
Ravits, H. G. .....St. Paul
§Rea, C. E.....St. Paul
Reid, J. W. .....St. Paul
§Richards, E. T. F.....St. Paul

Richardson, E. J., Jr. .....St. Paul
§Richardson, H. E.....St. Paul
§Richardson, R. J.....St. Paul
Rick, P. F. W.....St. Paul
Rinkey, Eugene .....St. Paul
§Ritchie, W. P.....St. Paul
§Ritt, A. E.....St. Paul
§Rogers, S. F.....St. Paul
Rolig, D. H.....St. Paul
§Rosenthal, Robert.....St. Paul
§Roth, G. C.....St. Paul
§Rothschild, H. J.....St. Paul
Rowe, C. J., Jr. .....St. Paul
§Roy, P. C.....St. Paul
†Ruhberg, G. N. .....Tarzona, Calif.
Rutherford, W. C.....Nisswa
Ryan, James D.....St. Paul
§Ryan, J. J.....St. Paul
§Ryan, J. M.....St. Paul
§Ryan, M. E.....St. Paul
§Sarnecki, M. M.....St. Paul
Satterlund, V. L. .....St. Paul
Savage, F. J. .....St. Paul
§Schmidtke, R. L.....St. Paul
Schoch, R. B. J.....St. Paul
§Schons, Edward.....St. Paul
§Schroeckenstein, H. F.....St. Paul
§†Schuldt, F. C.....St. Paul
§Schulze, A. G.....St. Paul
§Schwyzer, H. C.....St. Paul
§Scott, E. E.....St. Paul
Sekhon, M. S. .....St. Paul
†Senkler, G. E.....St. Paul
§Setzer, H. J.....St. Paul
Shannon, W. R.....St. Paul
Shaw, H. A. .....St. Paul
†Shellman, J. L. .Pacific Palisades, Cal.
§Shimonek, S. W.....St. Paul
Short, Jacob.....St. Paul
Sickels, E. W. .....St. Paul
Siegel, Clarence.....St. Paul
§Simons, L. T.....St. Paul
Singer, B. J.....St. Paul
†Skinner, H. O.....St. Paul
§Smisek, E. A.....St. Paul
§Smith, V. D. E.....St. Paul
§Snyder, G. W.....St. Paul
§Sohlberg, O. I.....St. Paul
§Sommers, Ben.....St. Paul
§Sorem, M. B.....St. Paul
Soucheray, P. H. .....St. Paul
§Souster, B. B.....St. Paul
Sprafka, J. L. .....St. Paul
§Sprafka, J. M.....St. Paul
§Steinberg, C. L.....St. Paul
Sterner, D. C. .....St. Paul
§Sterner, E. G.....St. Paul
§Sterner, E. R.....St. Paul
Sterner, J. J. .....St. Paul

Sterner, O. W.....St. Paul
Stewart, Alexander.....St. Paul
Stolpestad, A. H.....St. Paul
§Stolpestad, H. L.....St. Paul
§Strate, G. E.....St. Paul
Straus, M. L.....St. Paul
Strem, E. L.....St. Paul
§Sturley, Rodney F.....St. Paul
Swanson, J. A.....St. Paul
Swanson, L. J. .....So. St. Paul
§Swendson, J. J.....St. Paul
§Teisberg, C. B.....St. Paul
§Teisberg, J. E.....St. Paul
Thompson, F. A.....St. Paul
Thoreson, M. C. Bernice..So. St. Paul
Thorsen, D. S. .....St. Paul
Tifft, C. R.....St. Paul
§Tracht, R. R.....St. Paul
Travis, J. S.....St. Paul
§Tregilgas, H. R.....So. St. Paul
Van Bergen, F. H. ....Minneapolis
Varco, R. L.....St. Paul
Veirs, Dean.....St. Paul
Veirs, Ruby J. S.....St. Paul
§Venables, A. E.....St. Paul
*§Von der Weyer, W. H. ..St. Paul
§Waas, C. W.....St. Paul
§Walker, A. E.....St. Paul
§Walsh, E. F. .....St. Paul
§Walter, C. W.....St. Paul
§†Ward, P. D.....St. Paul
Warren, C. A.....St. Paul
Watson, P. T. .....St. Paul
Watson, W. H. A. .....St. Paul
Watson, W. J. .....Newport
Watz, C. E.....St. Paul
§Webber, F. L.....St. Paul
§Weis, B. A.....St. Paul
§Weisberg, Maurice.....St. Paul
§Wenzel, G. P.....St. Paul
*†Werner, O. S. .....St. Paul
Wesolowski, S. P. .....Minneapolis
†Wheeler, M. W. .....Lake Elmo
†Whitacre, J. C.....St. Paul
Williams, A. B.....St. Paul
§Williams, C. K.....St. Paul
§Williams, J. A.....St. Paul
§Wilson, J. A.....St. Paul
§Wilson, J. V.....St. Paul
Winnick, J. B.....St. Paul
§Wold, K. C.....St. Paul
§Wolff, H. J.....St. Paul
Wolkoff, H. J.....St. Paul
Word, H. L.....St. Paul
Wurdemann, A. L. .White Bear Lake
Youngren, E. R.....St. Paul
Zachman, L. L.....St. Paul
§Zimmermann, H. B.....St. Paul

RED RIVER VALLEY MEDICAL SOCIETY

Kittson, Mahnomen, Marshall, Norman, Pennington, Polk, Red Lake and Roseau Counties
Regular meetings quarterly—Annual meeting, December
Number of Members: 69

President
Covey, K. W. .....Mahnomen

Secretary
Sather, R. O.....Crookston

§Adkins, C. M.....Thief River Falls
Anderson, W. E.....Clearbrook
Behling, F. L. .....Oklee
§Behr, O. K.....Crookston
Berge, D. O.....Roseau
Berlin, A. S.....Hallock
*†Bertelson, O. L. .....Crookston
†Biedermann, Jacob ..Thief River Falls
§Boyer, G. S. .....Crookston
§Boynton, Bruce .....Ada
†Bratrud, Edward ..Thief River Falls
Bratrud, T. E. ....Thief River Falls
Brink, A. A.....Baudette
*Brown, L. L. .....Crookston
§Cameron, J. H. .....Crookston
§Canfield, A. .....Madison, Wis.
Carlson, A. E.....Warren
§Covey, K. W. .....Mahnomen
§Dale, L. M.....Red Lake Falls
Danford, K. A. .....Mahnomen
§Delmore, John L.....Roseau
§Delmore, John L., Jr. .....Roseau

Delmore, R. J.....Roseau
§Erickson, Eskil.....Halstad
Feigal, W. M. .....Thief River Falls
Greene, D. E., ...Thief River Falls
Haberle, C. A. .....Duluth
§Hendrickson, R. R. .....Crookston
§Henney, W. H.....McIntosh
Hollands, W. H.....Fisher
§Holmstrom, C. H. .....Warren
Janecky, A. G. .....Baudette
§Janssen, M. E. .....Crookston
Jensen, A. R. .....Crookston
Johnson, E. A. .....Thief River Falls
Johnson, H. C.....Thief River Falls
Johnson, R. E. .....Mankato
§Kinkade, B. R. .....Ada
†Kirk, G. P. .....East Grand Forks
§Klefstad, L. H. .....Greenbush
Knutson, G. A.....Hallock
§Kostick, W. R.....Fertile
Loken, Theodore .....Ada
Lynde, O. G. .....Thief River Falls
McLane, W. O. ...Thief River Falls
†Melby, O. F. .....Thief River Falls
§Mercil, W. F.....Crookston
Nelson, A. S.....Thief River Falls
†Nelson, H. E. .....Crookston

Nickerson, N. D. ...Thief River Falls
Nietfeld, A. B. .....Warren
§Norman, J. F.....Crookston
§Oppegaard, C. L.....Crookston
§Oppegaard, M. O.....Crookston
†Parsons, J. G. .....Crookston
Pearson, L. O.....Warroad
§Pohl,. D. E. .....Crookston
§Pumala, E. E. .....Warren
Quigley, W. P. ....Thief River Falls
§Reff, A. R.....Crookston
Reinhardt, J. H. ....Red Lake Falls
§Roholt, H. B. .....Fosston
§Rydland, A. D.....Crookston
*†Sather, Allen .....Fosston
Sather, E. L. .....Fosston
§Sather, G. A.....Fosston
Sather, R. N. .....Fosston
§Sather, R. O.....Crookston
§Skogerboe, R. B. .....Karlstad
§Starekow, M. D. ..Thief River Falls
Stewart, D. E. .....Crookston
Stone, Norman F. .....Gonvick
†Torgerson, W. B. .....Oklee
§Uhley, C. G.....Crookston
Watson, R. M. ....Thief River Falls
‡Wiltrout, I. G. .....Oslo

RENVILLE COUNTY MEDICAL SOCIETY

Regular meetings, second Tuesday of month
Annual meeting, November
Number of Members: 21

President
Hinz, W. E. .....Bird Island

Secretary
Knoche, H. A. .....Morgan

*†§Adams, R. C. .....Bird Island
Alcorn, W. J. .....Wabasso
§Anderson, C. A. .....Hector

§Anderson, Donald C. .....Olivia
§Billings, R. E.....Franklin
†§Brand, W. A. .....Redwood Falls
§Ceplecha, S. F.....Redwood Falls
§Cosgriff, J. A.....Olivia
Cosgriff, J. A., Jr. .....Olivia
§Dordal, J.....Sacred Heart
§Fawcett, A. M.....Renville
Flinn, T. E. .....Remer

†§Gaines, E. C. .....Buffalo Lake
§Hinz, W. E.....Bird Island
§Johnson, O. H.....Redwood Falls
§Johnson, W. E.....Morgan
§Knoche, H. A. .....Morgan
Lenz, J. R.....Morton
McLeod, John .....Olivia
Potthoff, C. J.....Washington, D. C.
Priesinger, J. W.....Renville

RICE COUNTY MEDICAL SOCIETY

Regular meeting, third Tuesday of
Annual meeting, May
Number of Members: 32

President
Studer, D. J. .... Faribault

Secretary
§Belshe, J. C. .... Northfield

Belshe, J. C. .... Northfield
†§Dungay, N. S. .... Northfield
§Engberg, E. J. .... Faribault
Francis, D. W. .... Morristown
†Hanson, A. M. .... Faribault
§Hanson, J. W. .... Northfield
†Huxley, F. W. .... Faribault
§Kennedy, G. L. .... Faribault
Kolars, J. J. .... Faribault
Kucera, L. B. .... Lonsdale
§Lende, Norman .... Faribault
Lexa, F. J. .... Lonsdale
Maertz, R. W. .... Faribault
*McKeon, J. O. .. San Angelo, Texas
§Mears, R. F. .... Northfield
Meyer, F. C. .... Kenyon
Meyer, P. F. .... Faribault
§Moses, R. R. .... Kenyon
Navratil, D. R. .... Montgomery
§Neutzman, A. W. .... Faribault
§Nielson, A. M. .... Northfield
Petersen, D. H. .... Northfield
§Robilliard, C. M. .... Faribault
Rohrer, C. A. .... Waterville
Rumpf, C. W. .... Faribault
*†Rumpf, W. H. .... Faribault
§Stevenson, F. W. .... Faribault
§Street, Bernard .... Northfield
§Studer, D. J. .... Faribault
Traeger, C. A. .... Faribault
§Weaver, P. H. .... Faribault
West, E. J. .... Fort Thomas, Ky.
Wilkinson, S. L. .... Faribault
§Wilson, W. E. .... Northfield

Regular meetings, second Thursday every month except July and August

ST. LOUIS COUNTY MEDICAL SOCIETY

Carlton, Cook, Itasca, Lake and St. Louis Counties
Annual meeting, January
Number of Members: 250

President
Gowan, L. R. .... Duluth

Secretary
Christensen, C. H. .... Duluth

§Abraham, A. L. .... Duluth
§Adams, B. S. .... Hibbing
Addy, E. R. .... Gilbert
†Arhelger, Stuart .... Freeborn
§Arko, J. L. .... Hibbing
§Armstrong, E. L. .... Duluth
§Athens, A. G. .... Duluth
†§Atmore, W. G. .... Duluth
§Bachnik, F. W. .... Hibbing
§Backus, R. W. .... Nopeming
§Bagley, C. M. .... Duluth
Bagley, Elizabeth C. .... Duluth
§Bagley, W. R. .... Duluth
§Baich, V. M. .... Bovey
§Bakkila, H. E. .... Duluth
§Bardon, Richard .... Duluth
§Barker, J. D. .... Duluth
Barney, L. A. .... Duluth
§Barrett, E. E. .... Duluth
§Becker, F. T. .... Duluth
Benell, O. E. .... Virginia
Bepko, Marie K. .... Cloquet
Berdez, G. L. .... Duluth
§Bergan, R. O. .... Duluth
§Bianco, A. J. .... Duluth
†Binet, H. E. .... Grand Rapids
§Blackmore, S. C. .... Biwabik
Bolz, J. A. .... Grand Rapids
Boman, P. G. .... Duluth
§Booren, J. C. .... Duluth
§Bowen, R. I .... Hibbing
†Boyer, S. H., Sr. .... Duluth
Boyer, S. H., Jr. .... Duluth
§Braun, O. C. .... Grand Rapids
Bray, K. E. .... Biwabik
§Bray, P. N. .... Duluth
Bray, R. B. .... Biwabik
§Brooker, W. J. .... Duluth
§Buckley, R. P. .... Duluth
§Butler, J. K. .... Cloquet
§Callan, T. D. .... Eveleth
Cantwell, W. F. .... International Falls
Chapman, T. L. .... Duluth
§Chermak, F. G. .... International Falls
§Christensen, C. H. .... Duluth
Clark, E. A. .... Duluth
§Clark, I. T. .... Duluth
§Coll, J. J. .... Duluth
†Collins, A. N. .... Moose Lake
*†Collins, H. C. .... Duluth
§Conley, F. W. .... Duluth
Cope, H. B. .... Virginia
§Coventry, W. A. .... Duluth
§Coventry, W. D. .... Duluth

Detjen, E. D. .... Bigfork
§Dickson, F. H., Jr. .... Proctor
§Dittrich, R. J. .... Duluth
Doyle, G. C. .... Duluth
§Eckman, P. F. .... Duluth
§Eckman, R. J. .... Duluth
§Eisenman, Walter .... Coleraine
§Ekblad, J. W. .... Duluth
§Elias, F. J. .... Duluth
§Emanual, K. W. .... Duluth
Eppard, R. M. .... Cloquet
§Erskine, G. M. .... Grand Rapids
§Estrem, T. A. .... Hibbing
§Ewens, H. B. .... Virginia
§Fawcett, K. R. .... Duluth
§Fellows, M. F. .... Duluth
Ferrell, C. R. .... Grand Rapids
§Fischer, M. McC. .... Duluth
§Fisketti, Henry .... Duluth
§Flynn, B. F. .... Hibbing
Fortier, R. G. .... Marble
§Fredericks, M. G. .... Duluth
§Gillespie, M. G. .... Duluth
§Goldish, D. R. .... Duluth
§Goodman, C. E. .... Virginia
§Gowan, L. R. .... Duluth
§Graham, A. W. .... Chisholm
§Grahek, J. P. .... Ely
§Graves, W. N. .... Duluth
§Grinley, A. V. .... Grand Rapids
§Haavik, J. E. .... Duluth
§Halbert, J. J. .... Duluth
Halliday, P. V. .... Duluth
Halme, W. B. .... Cloquet
¶Haney, C. L. .... Duluth
§Hansen, R. E. .... Hibbing
§Hanson, E. O. .... Cloquet
§Harris, C. N. .... Hibbing
§Hatch, W. E. .... Duluth
§Hayes, M. F. .... Nashwauk
§Hedberg, G. A. .... Nopeming
Heiam, W. C. .... Cook
§Hilding, A. C. .... Duluth
Hill, F. E. .... Duluth
Hirschboeck, F. J. .... Duluth
§Hoff, H. O. .... Duluth
§Houkom, S. S. .... Duluth
Hutchinson, Henry .... Moose Lake
§Jacobson, Clarence .... Chisholm
§Jacobson, F. C. .... Duluth
§Jensen, T. J. .... Duluth
§Jeronimus, H. J. .... Duluth
§Jessico, C. M. .... Duluth
§Joffe, H. H. .... Duluth
§Johnson, K. E. .... Duluth
§Johnsrud, L. W. .... Chisholm
Johnson, R. O. .... Hibbing
§Iolin, F. M. .... Bovey
§Kelly, A. C. .... Duluth
§Klein, Harry .... Duluth
§Klein, W. A. .... Duluth
§Knapp, F. N. .... Duluth
§Knoll, W. V. .... Duluth
§Kohlbry, C. O. .... Duluth
§Koskela, A. L. .... Deer River
Koskela, L. E. .... Deer River
§Kotchevar, F. R. .... Eveleth
§Krueger, V. R. .... Nopeming
§La Bree, R. H. .... Duluth
§Laird, A. T. .... Duluth
§Latterrell, K. E. .... Duluth
†Lenont, C. B. .... Virginia
Lepak, F. J. .... Duluth
Lewis, J. S., Jr. .... Nashwauk
§Litman, S. N. .... Duluth
*†Loofbourrow, E. H. .... Keewatin
§Luth, D. V. .... Duluth
MacDonald, R. A. .... Littlefork
§Macfarlane, P. H. .... Chisholm
§MacRae, G. C. .... Duluth
§Magney, F. H. .... Duluth
Magraw, R. M. .... St. Paul
§Malmstrom, J. A. .... Virginia
†Marcley, W. J. .... Minneapolis
§Martin, W. C. .... Duluth
§Mayne, R. M. .... Nopeming
†McCarty, P. D. .... Ely
†McCoy, Mary K. .... Duluth
McDonald, A. L. .... Duluth
McDonald, O. G. .... Duluth
§McHaffie, O. L. .... Duluth
§McKenna, M. J. .... Grand Rapids
McLeod, J. L. .... Grand Rapids
§McNutt, J. R. .... Duluth
Mead, C. H. .... Duluth
§Merriman, L. L. .... Duluth
‡Meyer, J. O. .... Grand Rapids
§Minty, E. W. .... Duluth
§Moe, R. J. .... Duluth
Moe, Thomas .... Moose Lake
§Moehring, H. G. .... Duluth
Mollers, T. P. .... Soudan
Monroe, P. B. .... Cloquet
Monserud, N. O. .... Cloquet
§Morsman, L. W. .... Hibbing
Mueller, Selma C. .... Duluth
§Murray, R. A. .... Hibbing

Neff, W. S. .... Virginia
§Nelson, R. L. .... Duluth
§Nicholson, M. A. .... Duluth
Norberg, C. E. .... Cloquet
§Nutting, R. E. .... Duluth

§Olson, A. E. .... Duluth
Olson, A. O. .... Duluth
§O'Neill, J. C. .... Duluth
§Paciotti, V. J. .... Hibbing
Palmer, H. A. .... Blackduck
§Papermaster, Ralph .... Two Harbors
†Parker, O. W. .... Moose Lake
Parker, W. H. .... Chisholm
§Parson, E. I. .... Duluth
Pasek, A. W. .... Cloquet
Pasek, E. A. .... Carlton
§Patch, O. B. .... Duluth
§Patey, R. T. .... Buhl
¶Pearsall, R. P. .... Virginia
¶Pederson, R. C. .... Duluth
Pennie, D. F. .... Duluth
Peterson, E. N. .... Virginia
Peterson, J. H. .... Duluth
§Power, J. E. .... Duluth
Puumala, R. H. .... Cloquet
§Raadquist, C. S. .... Hibbing
Raattama, J. W. .... Keewatin
Raihala, John .... Virginia
§Raiter, R. F. .... Cloquet
§Reed, Paul .... Virginia
†Robinson, J. M. .... Goshen, N. Y.
§Rokala, H. E. .... Virginia
§†Rood, D. C. .... Duluth
Rowe, O. W. .... Duluth
§Rowles, E. K. .... Coleraine
§Rudie, P. S. .... Duluth
§Runquist, J. M. .... Duluth
Ryan, W. J. .... Duluth

Sach-Rowitz, Alvin .... Moose Lake
§Salter, R. A. .... Virginia
Sandell, S. T. .... Nopeming
§Sarff, O. E. .... Duluth
Sax, M. H. .... Duluth
Sax, S. G. .... Duluth
§Schirber, M. J. .... Grand Rapids
Schmid, J. F. .... Duluth
§Schneider, L. E. .... Duluth
§Schroder, C. H. .... Duluth
Schweiger, T. R. .... Hibbing
§Seashore, R. T. .... Duluth
Sharp, M. C. .... Virginia
*†Shaw, A. W., ... Virginia
§Sher, D. A. .... Virginia
§Siegel, J. S. .... Virginia
§Sinamark, Andrew .... Hibbing
Sisler, C. E. .... Grand Rapids
§Smith, C. M. .... Duluth
Smith, W. R. .... Grand Marais
Snyker, O. E. .... Ely
§Spang, A. J. .... Duluth
§Spang, J. S. .... Duluth
*§Spicer, F. W. .... Duluth
§Strandjord, N. M. .... Virginia
¶§Strathern, M. L. .... Gilbert
§Strauss, E. C. .... Duluth
§Strewler, G. J. .... Duluth
§Strobel, W. G. .... Duluth
Stuart, A. B. .... Cloquet
§Sutherland, H. N. .... Ely

Swedberg, W. A. .... Duluth
§Swenson, A. O. .... Duluth
§†Taylor, C. W. .... Duluth
§Teich, K. W. .... Duluth
§Terrell, B. J. .... Nopeming
§Tetlie, J. P. .... Duluth
Tibbetts, M. H. .... Duluth
§Tingdale, Carlyle .... Hibbing
§Tosseland, Noel E. .... Duluth
§Tuohy, E. L. .... Duluth
§Urberg, S. E. .... Duluth
Van Ryzin, D. J. .... Duluth
§Van Valkenberg, J. D. .... Floodwood
§Walder, H. J. .... Duluth
§†Walker, A. E. .... Duluth
§Wallace, M. O. .... Duluth
Walter, F. H. .... International Falls
§Wells, A. H. .... Duluth
§Wheeler, D. W. .... Duluth
§Williams, B. F. P. .... Duluth
Winter, J. A. .... Duluth
§Ylitalo, W. H. .... Hibbing
§Young, T. O. .... Duluth
†Zlatovski, M. L. .... Duluth

SCOTT-CARVER COUNTY MEDICAL SOCIETY

Regular meetings, second Tuesday of the alternate months
Annual meeting, June
Number of Members: 27

President

Doherty, E. M. .... New Prague

Secretary

Hass, F. M. .... Jordan

†Ahrens, Curtis F. ... Galveston, Texas
Bratholdt, J. W. .... Watertown
Buck, F. H. .... Shakopee
§Cervenka, C. F. .... New Prague
§Doherty, E. M. .... New Prague
§Hass, F. M. .... Jordan
§Hebeisen, M. B. .... Chaska
Heinz, I. B. .... Shakopee
Heinz, L. H. .... Shakopee
§Juergens, H. M. .... Belle Plaine
Kline, R. F. .... Montgomery
§Kortsch, F. P. .... Prior Lake
§Kucera, S. T. .... Northfield
Larson, Loren J. .... Watertown
Martin, T. P. .... Arlington
Nagel, H. D. .... Waconia
Ninneman, N. N. .... Waconia
†Novak, E. E. .... New Prague
Olson, C. J. .... Belle Plaine
§Pearson, B. F. .... Shakopee
Pogue, R. E. .... Watertown
§Ponterio, J. E. .... Shakopee
§Rynda, E. R. .... New Prague
Schimelpfenig, G. T. .... Chaska
§Simons, B. H. .... Chaska
§†Westerman, A. E. ...... Montgomery
§Westerman, F. C. .... Montgomery

SOUTHWESTERN MINNESOTA MEDICAL SOCIETY

Cottonwood, Jackson, Murray, Nobles, Pipestone and Rock Counties
Regular meetings, at call
Annual meeting, October
Number of Members: 66

President

Beckering, Gerrit .... Edgerton

Secretary

Heiberg, O. M. .... Worthington

Anderson, O. W. .... Luverne
§Arnold, E. W. .... Adrian
§Balmer, A. I. .... Pipestone
§Basinger, H. P. .... Windom
Basinger, H. R. .... Mountain Lake
§Beckering, Gerrit .... Edgerton
§Benjamin, W. G. .... Pipestone
Bofenkamp, F. W. .... Luverne
†Brown, A. H. .... Pipestone
Carlson, J. V. .... Westbrook
§Christiansen, H. A. .... Jackson
§Chunn, S. S. .... Pipestone
†DeBoer, Hermanus .... Edgerton
§Doman, V. W. .... Lakefield
Doms, H. C. A. .... Slayton
§Doms, V. A. .... Slayton
Franz, W. M. .... Mountain Lake
§Gruys, R. I. .... Windom
§Hallin, R. P. .... Worthington
§Halloran, W. H. .... Jackson
§Halpern, D. J. .... Brewster
§Harrison, P. W. .... Worthington
Hebbel, Robert .... Minneapolis
§Heiberg, O. M. .... Worthington
Hitchings, W. S. .... Lakefield
§Hoyer, L. J. .... Windom
§Hursh, P. W. .... Slayton
Johnson, C. M. .... Jackson
§Johnson, M. A. .... Storden
§Karleen, B. N. .... Jackson
§Kilbride, E. A. .... Worthington
†Kilbride, J. S. .... Worthington
§Kotval, R. J. .... Pipestone
Laikola, L. A. .... Adrian
§Lohmann, J. G. .... Pipestone
§Maitland, E. T. .... Jackson
†Manson, F. M. .... Worthington
§Minge, R. K. .... Worthington
§Mork, B. O., Jr. .... Minneapolis
§Nealy, D. E. .... Adrian
§Nelson, C. A. .... Worthington
§Nickerson, J. R. .... Heron Lake
§Pankratz, P. J. .... Mountain Lake
§Patterson, H. D. .... Slayton
Johnson, C. M. .... Jackson
§Minge, R. K. .... Worthington
§Pierson, R. F. .... Slayton
§Piper, W. A. .... Mountain Lake
§Robinett, R. W. .... Worthington
§Rose, J. T. .... Lakefield
§Schade, F. L. .... Worthington
Schmidt, J. R. ...... Mountain Lake
§Schutz, E. S. .... Mountain Lake
§Sherman, C. L. .... Luverne
§Slater, S. A. .... Worthington
§Sogge, L. L. .... Windom
§Sorum, F. T. .... Jasper
§Stam, John .... Worthington
Stanley, C. R. .... Worthington
Stevenson, B. M. .... Fulda
Stratte, H. C. .... Windom
Watkins, J. A. .... Windom
§Wells, W. B. .... Jackson
§Williams, C. A. .... Pipestone
Williams, L. A. .... Minneapolis
§Williamson, H. A. .... Heron Lake
§Wisness, O. A. .... Slayton
Wolff, Helen B. .... Worthington

STEARNS-BENTON COUNTY MEDICAL SOCIETY

Regular meetings, third Thursday of month
Annual meeting, third Thursday of December
Number of Members: 59

President

Raetz, S. J. .... Maple Lake

Secretary

Libert, J. N. .... St. Cloud

Anderson, E. M. .... St. Cloud
§Baumgartner, F. H. .... Albany
§Beuning, J. B. .... St. Cloud
Brigham, C. F. .... St. Cloud
§Brigham, C. F., Jr. .... St. Cloud
Broker, H. M. .... Eden Valley
§Buscher, J. C. .... St. Cloud
§Clark, H. B. .... St. Cloud
Cleaves, W. D. .... Sauk Center
§Donaldson, C. S. .... Foley
Du Bois, J. F. .... Sauk Center
DuBois, Julian F., Jr. .. Sauk Center
Engstrom, G. F. .... Belgrade
§Evans, L. M. .... Sauk Rapids
§Fleming, T. N. .... St. Cloud
§Friesleben, William ...... Sauk Rapids
§Gaida, J. B. .... St. Cloud
§Goehrs, G. H. .... St. Cloud
Goehrs, H. W. .... St. Cloud
Grant, J. C. .... Sauk Center
§Haberman, Emil .... Osakis
§Halenbeck, P. L. .... St. Cloud
§Hall, W. E. .... Maple Lake
†Hemstead, Werner .... Minneapolis
Henry, C. J. .... Milaca
Henry, J. E. .... Milaca
Houle, Rollin J. .... St. Cloud
§Jones, R. N. .... St. Cloud
§Kelly, J. F. .... Cold Springs
§Koop, S. H. .... Richmond
Kuhlmann, L. B. .... Melrose
†Lewis, C. B. .... St. Cloud
§Libert, J. N. .... St. Cloud
§Luckemeyer, C. J. .... St. Cloud
§Mahowald, A. .... Albany
§McDowell, J. P. .... St. Cloud
Meyer, A. A. .... Melrose
§Milhaupt, E. N. .... St. Cloud
Musachio, N. F. .... Foley
Myre, C. R. .... Paynesville
§Nessa, C. B. .... St. Cloud
§O'Keefe, J. P. .... St. Cloud
O'Leary, J. H. .... St. Paul
§Petersen, R. T. .... St. Cloud
§Phares, Otto C. .... St. Cloud
§Raetz, S. J. .... Maple Lake
§Reif, H. J. .... St. Cloud
§Richards, W. B. .... St. Cloud
Salk, Richard J. .... Albany
§Sandven, N. O. .... Paynesville
§Schatz, F. J. .... St. Cloud
§Schmitz, E. J. .... Holdingford
Sherwood, G. E. .... Kimball
§Sisk, H. E. .... St. Cloud
§Smith, R. C. .... Holdingford
Stangl, P. E. .... St. Cloud
Veranth, L. A. .... St. Cloud
§Vrtiska, F. L. .... St. Cloud
§Walfred, K. A. .... St. Cloud
Wedes, Deno J. .... Belgrade
§Wenner, W. T. .... St. Cloud
§Wetzel, E. V. .... St. Cloud
§Wittrock, L. H. .... Watkins
Zachman, A. H. .... Melrose

STEELE COUNTY MEDICAL SOCIETY

Regular meeting, every second month
Annual meeting, December
Number of Members: 20

President

Kurtin, H. J. ...... Blooming Prairie

Secretary

Lundquist, C. W. .... Owatonna

Anderson, F. C. .... Owatonna
Berghs, L. V. .... Owatonna
Dewey, D. H. .... Owatonna
Ertel, E. O. .... Ellendale
Hartung, E. H. .... Claremont
Kurtin, H. J. ...... Blooming Prairie
Lundquist, C. W. .... Owatonna
Mahowald, Aloys .... Albany
McEnaney, C. T. .... Owatonna
McIntyre, J. A. .... Owatonna
Melby, Benedik ..... Blooming Prairie
Moorhead, D. E. .... Owatonna
Nelson, E. J. .... Owatonna
Olson, A. J. .... Owatonna
Peterson, W. H. .... Owatonna
Roberts, O. W. .... Owatonna
Schaefer, J. F. .... Owatonna
Senn, E. W. .... Owatonna
Stransky, T. W. .... Owatonna
§Wilkowske, R. J. .... Owatonna

UPPER MISSISSIPPI MEDICAL SOCIETY

Aitkin, Beltrami, Cass, Clearwater, Crow Wing, Hubbard, Koochiching,
Lake of the Woods, Morrison, Todd and Wadena Counties
Annual meeting, February
Annual meeting, January
Number of Members: 102

President
Mulligan, A. M. .... Brainerd

Secretary
Badeaux, G. I. .... Brainerd

Adkins, G. H.	Faribault
§Anderson, Werner	Brainerd
§Badeaux, G. I.	Brainerd
Beise, R. A.	Brainerd
Bender, J. H.	Brainerd
Borgerson, A. H.	Sebeka
Cardle, G. E.	Brainerd
Closuit, F. C.	Aitken
Cook, J. M.	Staples
Coombs, C. H.	Cass Lake
†Corrigan, J. E.	Spooner
Craig, C. C.	International Falls
§Crow, E. R.	Ah-Gwah-Ching
Cushing, R. L.	Brainerd
Davis, L. F.	Wadena
Davis, L. T.	Wadena
*Davis, T. C.	Wadena
Davis, T. L.	Wadena
Dewesse, W. J.	Bemidji
Eiler, John	Park Rapids
Erickson, Alvin	Long Prairie
Fait, R. V.	Little Falls
Fearing, J. E.	Minneapolis
Fine, B. A.	Crosby
Fitzsimmons, W. E.	Brainerd
§Fortier, G. M. A.	Little Falls
Friefeld, Saul	Brookings, S. D.
Garlock, A. V.	Bemidji
Garlock, D. H.	Bemidji
Ghostley, Mary C.	Puposky
†Gilmore, Rowland	Bemidji
¶Grogan, J. S.	Wadena
Groschupf, T. P.	Bemidji
Grose, F. N.	Clarissa
§Halladay, G. J.	Brainerd
Hanover, R. D.	Little Fork
Hartjen, J. K.	Bemidji
Healy, R. T.	Pierz
Hendricks, E. J.	St. Paul
Higgs, W. W.	Park Rapids
Hill, W. C.	Pequot Lakes
Hoganson, D. E.	Bemidji
†House, Z. E.	Burbank, Calif.
§Houston, D. M.	Park Rapids
Hubbard, O. E.	Brainerd
†Johnson, C. E.	St. Paul
Johnson, D. L.	Little Falls
Johnson, E. W.	Bemidji
Johnson, K. J.	Bemidji
Johnson, S. M.	Wadena
Johnstone, W. W.	Ah-Gwah-Ching
Kanne, E. R.	Brainerd
Kinports, E. B.	International Falls
Knight, E. G.	Swanville
Larson, Leroy	Bagley
Laughlin, J. T.	Grey Eagle
Lee, H. W.	Brainerd
Leggett, E. A.	Ah-Gwah-Ching
§Lenarz, A. J.	Browerville
Longfellow, Helen B.	Brainerd
Lund, W. J.	Staples
Mark, Hilbert	Minneapolis
Marshall, C. M.	Crosby
McCann, D. F.	Bemidji
McGeary, M. D.	Brainerd
Miners, G. A.	Bemidji
Mitby, I. L.	Aitkin
§Mosby, M. E.	Long Prairie
§Mulligan, A. M.	Brainerd
Nelson, Bernette G.	Menahga
Nelson, Bernice A.	Menahga
Nelson, N. P.	Minneapolis
Nixon, James B.	Crosby
Nolan, D. E.	Dayton, Ohio
Olson, Lillian	Ah-Gwah-Ching
Parker, C. W.	Wadena
Parker, Warren E.	Sebeka
Petraborg, Harvey T.	Aitkin
Pierce, C. H.	Wadena
Pierce, R. B.	Wadena
Potek, D. M.	International Falls
§Quanstrom, V. E.	Brainerd
†Ratcliffe, J. J.	Aitkin
Ringle, O. F.	Walker
Rozycki, A. T.	Pine River
§Sanderson, A. G.	Deerwood
§Schmitz, G. P.	Little Falls
Schnugg, F. J.	Brainerd
§Simons, E. J.	Swanville
*Smith, B. A.	Crosby
§Stein, R. J.	Pierz
Stoy, R. A.	Little Falls
Thabes, J. A., Sr.	Brainerd
§Thabes, J. A., Jr.	Brainerd
Vandersluis, C. W.	Bemidji
§Watson, A. M.	Royalton
*†Watson, J. D.	Minneapolis
Watson, P. T.	Minneapolis
Watson, S. W.	Royalton
Whittemore, D. D.	Bemidji
Wikoff, H. M.	Bemidji
Will, C. B.	Bertha
§Will, W. W.	Bertha
Williams, M. M.	Ah-Gwah-Ching
Wilson, V. O.	Minneapolis
Wingquist, C. G.	Crosby
Zeigler, C. M.	Pine River

WABASHA COUNTY MEDICAL SOCIETY

Regular meetings, Spring and Fall
Annual meeting, first Thursday after first Monday in October
Number of Members: 16

President
Ekstrand, L. M. .... Wabasha

Secretary
Wilson, W. F. .... Lake City

§Bayley, E. C.	Lake City
§Bouquet, B. J.	Wabasha
§Bowers, R. N.	Lake City
Collins, J. S.	Wabasha
§Ekstrand, L. M.	Wabasha
§Ellis, E. W.	Elgin
§Flesche, B. A.	Lake City
§Gjerde, W. P.	Lake City
Glabe, R. A.	Plainview
§Mahle, D. G.	Plainview
Martin, D. A.	Wabasha
§Ochsner, C. G.	Wabasha
†Replogle, W. H.	Los Angeles, Calif.
Vaughn, C. G.	Plainview
Wellman, T. G.	Clinton, Iowa
†Wilson, W. F.	Lake City

WASECA COUNTY MEDICAL SOCIETY

Regular meetings, every six months
Annual meeting, January
Number of Members: 9

President
Davis, R. D. .... Waseca

Secretary
Olds, G. H. .... New Richland

§Davis, R. D.	Waseca
†§Gallagher, B. J.	Waseca
Gallagher, W. B.	Waseca
§Hottinger, R. C.	Janesville
§McIntire, H. M.	Waseca
§Oeljen, S. C. G.	Waseca
§Olds, G. H.	New Richland
§Swenson, O. J.	Waseca
§Wadd, C. T.	Janesville

WASHINGTON COUNTY MEDICAL SOCIETY

Regular meetings, Second Tuesday in each month, except June, July, August
Annual meeting, second Tuesday in December
Number of Members: 17

President
Sherman, C. H. .... Bayport

Secretary
Boleyn, E. S. .... Stillwater

§Boleyn, E. S.	Stillwater
Burseth, E. C.	Forest Lake
§Carlson, R. E.	Stillwater
§†Haines, J. H.	Stillwater
§Holcomb, J. T.	Marine-on-St. Croix
Humphrey, W. R.	Stillwater
§Jenson, J. E.	Stillwater
Johnson, R. G.	Stillwater
Josewski, R. J.	Stillwater
Juergens, M. F.	Stillwater
Knudson, R. A.	Forest Lake
§McCarten, F. M.	Stillwater
Poirier, J. A.	Forest Lake
Ruggles, G. M.	Forest Lake
§Sherman, C. H.	Bayport
§Stuhr, J. W.	Stillwater
Van Meier, Henry	Stillwater

WEST CENTRAL MINNESOTA MEDICAL SOCIETY

Big Stone, Pope, Stevens, and Traverse Counties
Regular meetings, March, May, September and November
Annual meeting, November
Number of Members: 29

Acting President
Barnett, G. L. .... Graceville

Secretary
Gericke, J. T. .... Glenwood

Arneson, A. I.	Morris
§Barnett, G. L.	Graceville
§Behmler, F. W.	Morris
§Bergan, Otto	Clinton
†Bolsta, Charles	Ortonville
Dahle, M. B.	Olivia
§†Eberlin, E. A.	Glenwood
§Eide, O. A.	Hancock
§Elsey, E. M.	Glenwood
†Elsey, J. R.	Glenwood
†Fitzgerald, E. T.	Morris
§Gericke, J. T., Jr.	Glenwood
§Giesen, A. F.	Starbuck
Hedemark, H. H.	Ortonville
Hedemark, T. A.	Ortonville
§Karn, J. F.	Ortonville
§Lindberg, A. L.	Wheaton
§†Linde, Herman	Cyrus
§Magnuson, A. E.	Wheaton
McIver, B. A.	Lowry
§Merrill, R. W.	Morris
Muir, W. F.	Browns Valley
O'Donnell, D. M.	Ortonville
§Oliver, I. L.	Graceville
§Plasha, M. K.	Glenwood
Ransom, M. L.	Hancock
§Rossberg, Raymond A.	Morris
§Swedenburg, P. A.	Glenwood
Turbak, C. E.	Herman
§Wagner, N. W.	Graceville

WINONA COUNTY MEDICAL SOCIETY

Regular meeting, first Monday in January, March, July, October
Annual meeting, first Monday in January
Number of Members: 32

President
Roemer, H. J. ....Winona

Secretary
Schmidt, H. R. ....Winona

§Benoit, F. T.................Winona
Blochowiak, N. P. ....Rushford
§Boardman, D. V.............Winona
§Canfield, W. W.............Houston
§Christensen, E. E. ....Winona
Finkelnburg, W. O. ....Winona
§Hartwich, R. F. ....Winona
Heise, Carl ....Winona
§Heise, Herbert.............Winona
§Heise, Paul..................Winona
Heise, Philip ....Winona
§†Heise, W. F. C............Winona
§Heise, W. V................Winona
§Johnston, L. F.............Winona
§Keyes, J. D. ....Winona
§Loomis, G. L...............Winona
§Mattison, P. A..............Winona
McLaughlin, E. M. ....Winona
§Meinert, A. E................Winona
Neumann, C. A. ....Winona
§Page, R. L..............St. Charles
§†Robbins, C. P..............Winona
§Roemer, H. J................Winona
§Rogers, C. W................Winona
§Roth, F. D. ....Lewiston
§Satterlee, H. W.............Lewiston
Schaefer, Samuel.............Winona
§Schmidt, Hilmar.............Wilmar
§Steiner, I. W................Winona
§†Tweedy, G. J. ....Winona
§Tweedy, J. A. ....Winona
Tweedy, R. B. ....Winona
§Vollmer, F. J................Winona
§Wilson, R. H................Winona
§Younger, L. I...............Winona

WRIGHT COUNTY MEDICAL SOCIETY

Regular meeting, not scheduled
Annual meeting, October
Number of Members: 16

President
Ryding, V. T. ....Howard Lake

Secretary
Catlin, T. J. ....Buffalo

§Anderson, W. P..............Buffalo
§Bendix, L. H..............Annandale
§Catlin, J. J..................Buffalo
§Catlin, T. J..................Buffalo
§Ellison, F. E..............Monticello
§Greenfield, W. T.............Delano
Grundset, O. J.............Montrose
Guilfoile, P. J.................Delano
*Harriman, Leonard ....Howard Lake
§Hart, W. E...............Monticello
Hom, L. Y. W. ....Monticello
Peterson, O. L................Cokato
§Ridgway, A. M...........Annandale
§Roholt. C. L................Waverly
§Ryding, V. T............Howard Lake
*Swezey, B. F.................Buffalo
§Thielen, R. D............St. Michael
Thompson, Arthur ....Cokato

Alphabetic Roster

Key to Symbols: *Deceased; †Affiliate, Associate or Life Member; ¶Affiliate or Life Membership Pending; ‡In Service; §Wife is Member of Woman's Auxiliary.

Aagaard, G. N., Jr.	Minneapolis
Aanes, A. M.	Red Wing
Aborn, W. H.	**Hawley**
Abraham, A. L.	Duluth
Abramson, Milton	Minneapolis
Ackerman, R. F.	Memphis, Tenn
Adair, A. F., Jr.	St. Paul
Adams, B. S.	Hibbing
Adams, F. H.	Minneapolis
Adams, N. D.	**Rochester**
Adams, R. C.	Bird Island
Adams, Richard C.	Rochester
Addy, E. R.	Gilbert
Adkins, C. D.	Minneapolis
Adkins, C. M.	Thief River Falls
Adkins, G. H.	Faribault
Adson, A. W.	Rochester
Affeldt, D. E.	Kasson
Aga, John	Mankato
Ahern, E. E.	**Minneapolis**
Ahlfs, J. J.	Caledonia
Ahrens, A. E.	**St. Paul**
Ahrens, A. H.	**St. Paul**
Ahrens, C. F.	**Galveston, Texas**
Aitkens, H. B.	LeCenter
Akester, Ward	Fergus Falls
Akins, W. M.	**Red Wing**
Albers, D. D.	Rochester
Albrecht, H. H.	Chisago City
Alcorn, W. J.	Wabasso
Alcott, D. L.	Rochester
Alden, John F., Jr.	**St. Paul**
Aldrich, C. A.	Rochester
Alexander, H. A.	Minneapolis
Alger, E. W.	**Minneapolis**
Aling, C. A.	Minneapolis
Allen, E. V. N.	Rochester
Altnow, H. O.	Minneapolis
Alvarez, W. C.	Rochester
Amberg, Samuel	Rochester
Amerongen, W. W.	St. Paul
Andersen, H. A.	Rochester
Andersen, S. C.	**Minneapolis**
Anderson, A. S.	Rochester
Anderson, A. D.	Rochester
Anderson, C. A.	**Hector**
Anderson, C. D.	Chicago, Ill.
Anderson, D. C.	**Olivia**
Anderson, D. D.	Minneapolis
Anderson, D. P., Jr.	Austin
Anderson, E. D.	**Minneapolis**
Anderson, E. M.	St. Cloud
Anderson, E. R.	Minneapolis
Anderson, Franklin	**Owatonna**
Anderson, F. J.	Minneapolis
Anderson, J. J.	St. Paul
Anderson, J. K.	Minneapolis
Anderson, J. R.	Rochester
Anderson, K. W.	Minneapolis
Anderson, M. J.	**Rochester**
Anderson, M. W.	**Rochester**
Anderson, O. W.	**Luverne**
Anderson, R. E.	Willmar
Anderson, R. L.	**Rochester**
Anderson, S. H.	Red Wing
Anderson, T. P.	**Rochester**
Anderson, U. S.	Minneapolis
Anderson, W. P.	Buffalo
Anderson, W. E.	Clearbrook
Anderson, W. H.	Minneapolis
Anderson, W. T.	**Minneapolis**
Anderson, W. W.	**Brainerd**
Andreassen, Einar C.	St. Paul
Andrejek, A. R.	Milaca
Andresen, K. D.	Minneapolis
Andrews, R. N.	Mankato
Andrews, R. S.	Minneapolis
Anthony, W. P.	**Rochester**
Arata, J. E.	Rochester
Arends, A. L.	Moose Lake
Arey, S. L.	**Minneapolis**
Arhelger, Stuart	Freeborn
Arko, J. L.	Hibbing
Arlander, C. E.	Minneapolis
Arling, L. S.	Minneapolis
Armstrong, E. L.	Duluth
Armstrong, R. S.	**Winnebago**
Arndt, H. W.	Detroit Lakes
Arnesen, J. F.	Rochester
Arneson, A. I.	Morris
Arnold, Anna W.	**Minneapolis**
Arnold, D. C.	Minneapolis
Arnold, E. W.	Adrian
Arnquist, A. S.	St. Paul
Arnson, J. M.	Benson
Arny, F. P.	St. Paul
Arvidson, C. G.	Minneapolis
Arzt, P. K.	St. Paul
Ashe, W. M.	San Francisco, Calif.
Athens, A. G.	Duluth
†Atmore, W. G.	Rochester
†Aune, Martin	Minneapolis
†Aurand, W. H.	Minneapolis
Aurelius, J. R.	St. Paul
Ausman, C. F.	St. Paul
Ausman, D. R.	**St. Paul**
Austin, G. W.	**Rochester**
Austin, W. E.	Minneapolis
Babb, F. S.	**St. Paul**
Bachnik, F. W.	Hibbing
Backus, R. W.	Nopeming
Bacon, D. K.	St. Paul
*†Bacon, L. C.	St. Paul
Badeaux, G. I.	Brainerd
Bagby, G. W.	Cannon Falls
Baggenstoss, A. H.	Rochester
Bagley, C. M.	Duluth
Bagley, Elizabeth C.	Duluth
Bagley, W. R.	Duluth
Baich, V. M.	Bovey
Bailey, Allen A.	**Rochester**
Bailey, R. B.	Phoenix, Ariz.
Bair, H. L.	Rochester
Baird, J. W.	Minneapolis
Baken, M. P.	Minneapolis
Baker, A. B.	Minneapolis
Baker, A. C.	**Fergus Falls**
Baker, A. T.	Minneapolis
Baker, E. L.	**Minneapolis**
Baker, G. S.	Rochester
Baker, H. R.	Hayfield
Baker, Jeannette L.	**Fergus Falls**
†Baker, Looe	**Minneapolis**
Baker, M. E.	Minneapolis
Baker, N. H.	Fergus Falls
Baker, R. L.	Hayfield
Bakkila, H. E.	Duluth
Balcome, M. M.	St. Paul
‡Balfour, D. C.	Rochester
Balfour, D. C., Jr.	Rochester
Balfour, W. M.	Rochester
Balkin, S. G.	Minneapolis
Ball, Warren P.	**Rochester**
Balmer, A. I.	Pipestone
‡Bank, F. W.	Fort Howard, Md.
Bank, H. E.	Portland, Ore.
Banner, Edw. A.	Rochester
†Barber, J. P.	Ely
Barber, T. E.	**Austin**
Bardon, Richard	Duluth
Bargen, J. A.	Rochester
Barker, J. D.	**Duluth**
Barker, N. W.	Rochester
Barnes, A. R.	Rochester
Barnett, G. L.	**Graceville**
Barnett, J. M.	St. Paul
Barney, L. A.	Duluth
Barr, L. C.	Albert Lea
Barr, M. M.	Minneapolis
Barr, R. N.	**St. Paul**
Barr, W. H.	Wells
Barrett, E. E.	Duluth
Barron, Moses	Minneapolis
Barron, S. S.	Minneapolis
Barry, L. W.	St. Paul
†Barsness, Nellie O. N.	St. Paul
Bartholomew, L. G.	Rochester
*Barton, J. C.	Bethesda, Md.
Basinger, H. P.	Windom
Basinger, H. R.	Mountain Lake
Baskin, Roy H.	**Rochester**
Bastron, J. A.	Rochester
Batdorf, B. N.	**Good Thunder**
Bateman, J. G.	**Rochester**
Bateman, Olive L.	Hopkins
Bauer, E. L.	**St. Paul**
Baumgartner, F. H.	Albany
†Baxter, S. H.	**Minneapolis**
Bayley, E. C.	Lake City
Bayrd, E. D.	Rochester
Beach, Northrup	Minneapolis
Beahrs, O. H.	**Rochester**
†Beals, Hugh	**St. Paul**
†Beard, A. H.	Minneapolis
Beard, E. F.	Rochester
Beck, W. W., Jr.	Salt Lake, Utah
†Becker, A. M.	Minneapolis
Becker, F. T.	Duluth
Becker, S. W., Jr.	Rochester
Beckering, Gerrit	Edgerton
†Beckman, W. G.	**Palo Alto, California**
Bedford, E. W.	Minneapolis
Beech, R. H.	**St. Paul**
Beek, H. O.	St. Paul
Beeler, J. W.	**Rochester**
Beer, J. J.	St. Paul
Begley, J. W.	**Rochester**
Behling, F. L.	Oklee
Behmler, F. W.	Morris
Behr, O. K.	Crookston
Beise, R. A.	Brainerd
Beiswanger, R. H.	**Minneapolis**
Belding, H. H., III	Rochester
Bell, C. C.	St. Paul
†Bell, E. T.	Minneapolis
Bellegie, N. J.	**Rochester**
Bellomo, James	St. Paul
Bellomo, John	Grand Meadows
‡Bellville, T. P.	Minneapolis
Belote, G. B.	Caledonia
Belshe, J. C.	Northfield
Belzer, M. S.	Minneapolis
Bender, J. H.	**Brainerd**
Bendix, L. H.	Annandale
Benedict, W. L.	Rochester
Benell, O. E.	Virginia
Benepe, J. L.	St. Paul
Benesh, L. A.	Minneapolis
‡Benjamin, A. E.	Minneapolis
Benjamin, E. G.	Minneapolis
Benjamin, H. G.	Minneapolis
Benjamin, W. G.	Pipestone
†Benn, F. G.	LaMesa, Calif.
Bennett, Henry S.	**Rochester**
Bennett, W. A.	Rochester
†Bennion, P. H.	**Isway, Mont.**
Benoit, F. T.	Winona
Benson, L. M.	**Tracy**
Bentley, N. P.	St. Paul
Benton, P. C.	Minneapolis
*Bentson, J. H.	Rochester
Bepko, Marie K.	Cloquet
Berdez, G. L.	Duluth
Berens, James	Rochester
Bergan, Otto	Clinton
Bergan, R. O.	Duluth
Berge, D. O.	Roseau
Berge, H. L.	**Mora**
Berger, A. G.	Minneapolis
Bergh, G. S.	Minneapolis
Bergh, Solveig, M.	**Minneapolis**
Berghs, L. V.	Owatonna
Bergman, O. B.	St. James
Bergquist, K. E.	Battle Lake
Berkman, D. M.	Rochester
Berkman, J. M.	Rochester
Berkwitz, N. J.	Minneapolis
Berlin, A. S.	Hallock
§Berman, Reuben	Minneapolis
Bernatz, P. E.	**Rochester**
Bernstein, W. C.	St. Paul
*†Bertelson, O. L.	Crookston
Bessesen, A. N., Jr.	Minneapolis
§Bessesen, D. H.	Minneapolis
Bessessen, W. A.	Minneapolis
Betts, R. A.	Seattle, Wash.
Beuning, J. B.	St. Cloud
Beyer, E. F.	**Braham**
Bianco, A. J.	Duluth
Bicek, J. F.	**St. Paul**
Bickel, W. H.	Rochester
Biddle, C. M.	Hastings
†Biedermann, Jacob	Thief River Falls

Bieter, R. N.	Minneapolis
Bigelow, C. E.	Dodge Center
Bigler, Earl E.	**Perham**
Bigler, I. E.	**Perham**
Bilka, P. J.	Rochester
Billings, R. E.	Franklin
†Binet, H. E.	Grand Rapids
†Binger, H. E.	Phoenix, Ariz.
Black, B. M.	Rochester
Black, E. J.	St. Paul
Black, W. A.	New Ulm
Blackburn, C. M.	**Rochester**
Blackmore, S. C.	**Biwabik**
Blake, A. J.	**Hopkins**
†**Blake, James**	**Hopkins**
Blake, James A.	Hopkins
†Blake, P. S.	Minneapolis
Blochowiak, N. P.	Rushford
Block, Melvin A.	**Rochester**
Bloedel, T. J. G.	**Osseo**
Bloemendaal, E. J. G.	Lake Park
Blomberg, W. R.	Princeton
Bloom, N. B.	Minneapolis
Blumenthal, J. S.	Minneapolis
Blunt, C. P., III	Lynchburg, Va.
Boardman, D. V.	Winona
Bock, R. A.	St. Paul
Bockman, M. W. H.	Minneapolis
Bodaski, A. A.	Le Center
Bodelson, A. H.	Hopkins
Boeckmann, Egil	St. Paul
Boehrer, J. J., Jr.	Minneapolis
Bofenkamp, F. W.	Luverne
Boies, L. R.	Minneapolis
Boisclair, T. G.	**Detroit Lakes**
Bolender, H. L.	St. Paul
Boleyn, E. S.	Stillwater
Bolger, J. V., Jr.	Oconomowoc, Wis.
Boline, C. A.	Battle Lake
†Bolsta, Charles	Ortonville
Bolz, J. A.	Grand Rapids
Boman, P. G.	Duluth
Boody, G. J., Jr.	Dawson
Booren, J. C.	**Duluth**
†Booth, A. E.	Minneapolis
‡Boothby, W. M.	Rochester
Boreen, C. A.	Minneapolis
Borden, C. W.	**Minneapolis**
Borg, J. F.	St. Paul
Borgerson, A. H.	Sebeka
Borgeson, E. J.	Minneapolis
Borman, C. N.	Minneapolis
Bosland, H. G.	Willmar
Bossert, C. S.	Mora
Bottolfson, B. T.	Fargo, N. D.
Boucek, R. J.	**Rochester**
Bouma, L. R.	St. Paul
Bouquet, B. J.	Wabasha
Bourgert, G. E.	Hudson, Wis.
Bowen, R. L.	Hibbing
Bowers, G. G.	**Minneapolis**
Bowers, R. N.	Lake City
‡Bowing, H. H.	Rochester
Boyd, David A., Jr.	Rochester
Boyd, L. M.	Alexandria
Boyer, G. S.	Crookston
†Boyer, S. H., Sr.	Duluth
Boyer, S. H., Jr.	Duluth
Boynton, Bruce	**Ada**
Boynton, Ruth E.	Minneapolis
Boysen, Herbert	Madelia
†**Boysen, Peter**	**Austin, Texas**
‡Braasch, W. F.	Rochester
Braceland, F. J.	**Rochester**
Brand, G. D.	St. Paul
†Brand, W. A.	Redwood Falls
Brandenburg, R. O.	**Rochester**
Branham, D. S.	St. Peter
*Branton, B. J.	Willmar
Bratholdt, J. W.	Watertown
Bratrud, A. F.	Minneapolis
†Bratrud, Edward	Thief River Falls
Bratrud, T. E.	Thief River Falls
Bratrude, E. J.	St. James
Braude, A. I.	Minneapolis
Braun, O. C.	Grand Rapids
Bray, E. R.	St. Paul
Bray, K. E.	Biwabik
Bray, P. N.	Duluth
Bray, R. B.	Biwabik
Bregel, F. L.	St. James
Breitenbucher, R. B.	Minneapolis
Brekke, H. J.	Minneapolis
Bresette, J. E.	Rochester
Brickley, Paul M.	**Rochester**
Briggs, J. F.	St. Paul
Brigham, C. F.	St. Cloud
Brigham, C. F., Jr.	**St. Cloud**
Brill, Alice K.	Minneapolis
Brink, A. A.	**Baudette**
Brink, D. M.	Hutchinson
Broadie, T. E.	St. Paul
Brobyn, C. W.	Minneapolis
Broders, A. C.	Rochester
Brodie, W. D.	St. Paul
Broker, H. M.	**Eden Valley**
Brooker, W. J.	Duluth
Brooks, C. N.	Minneapolis
Brotchner, R. J.	**St. Paul**
Brown, A. E.	Rochester
†**Brown, A. H.**	**Pipestone**
†Brown, E. D.	Paynesville
Brown, H. A.	Rochester
Brown, J. C.	St. Paul
Brown, J. R.	Rochester
*Brown, L. L.	Crookston
Brown, P. W.	**Rochester**
†**Brown, S. P.**	**Minneapolis**
Brown, W. D.	Minneapolis
Brunsting, L. A.	Rochester
Brusegaard, J. F.	Red Wing
Brutsch, G. C.	Minneapolis
Brzustowicz, R. J.	Rochester
Buchstein, H. F.	Minneapolis
Buck, F. H.	Shakopee
Buckley, R. P.	Duluth
Buffmire, D. K.	Rochester
Buie, Louis A.	Rochester
Buirge, R. E.	**Minneapolis**
Bulinski, T. J.	St. Paul
Bulkley, Kenneth	Minneapolis
Bunker, B. W.	Anoka
Burch, E. P. II	St. Paul
†**Burch, F. E.**	**St. Paul**
Burchell, H. B.	Rochester
Burgert, E. O., Jr.	Rochester
Burgess, H. M.	Rochester
Burke, E. C.	Rochester
Burkland, E. C.	St. Paul
Burlingame, D. A.	St. Paul
Burmeister, R. O.	**Welcome**
Burnap, W. L.	Fergus Falls
Burnham, W. H.	Minneapolis
Burns, F. M.	Milan
Burns, Catherine	Albert Lea
*Burns, H. A.	Anoka
*Burns, L. S.	St. Paul
Burns, M. A.	Milan
Burns, R. M.	St. Paul
Burseth, E. C.	Forest Lake
Burton, C. G.	St. Paul
Buscher, J. C.	St. Cloud
Bush, R. P.	Minneapolis
Bushard, W. J.	Minneapolis
Busher, H. H.	St. Paul
Butin, J. W.	Rochester
Butler, D. B.	Rochester
Butler, J. K.	Cloquet
Butt, H. R.	Rochester
Butturff, C. R.	Freeborn
Butzer, J. A.	Mankato
Buzzelle, L. K.	Minneapolis
Cable, M. L.	Minneapolis
Cabot, C. M.	**Minneapolis**
Cabot, V. S.	Minneapolis
Cady, L. H.	Minneapolis
Cain, C. L.	St. Paul
Cain, J. C.	**Rochester**
Cain, J. H.	**Hoffman**
Cairns, R. J.	Redwood Falls
‡Calhoun, F. W.	Albert Lea
Callahan, F. F.	**St. Paul**
Callan, T. D.	Eveleth
Callerstrom, G. W.	Minneapolis
Cameron, Isabell L.	**Minneapolis**
Cameron, J. H.	Crookston
Camp, J. D.	Rochester
*Camp, W. E.	Minneapolis
Campbell, D. C.	Rochester
Campbell, L. M.	**Minneapolis**
Campbell, O. J.	Minneapolis
Canfield, Albert	Madison, Wis.
Canfield, W. W.	Houston
Cannon, B. W.	Memphis, Tenn.
Cantwell, W. F.	International Falls
Caplan, Leslie	**Minneapolis**
Cardle, A. E.	Minneapolis
Cardle, G. E.	Brainerd
Carey J. B.	Minneapolis
Carey, J. M.	Rochester
Carlander, L. W., Jr.,	Rochester
Carley, W. A.	St. Paul
Carlisle, J. C.	Rochester
Carlson, A. E.	Warren
Carlson, C. E.	Alexandria
Carlson, J. V.	Westbrook
Carlson, Lawrence	Minneapolis
Carlson, L. T.	Minneapolis
Carlson, R. E.	Stillwater
Carman, J. E.	Detroit Lakes
Caron, R. P.	Minneapolis
Carpenter, G. T.	**Rochester**
Carr, D. T.	Rochester
Carroll, T. T.	**Rochester**
Carroll, W. C.	St. Paul
Carryer, H. M.	Rochester
Cashin, J. C.	**Rochester**
Caspers, C. G.	Minneapolis
Catlin, J. J.	Buffalo
Catlin, T. J.	Buffalo
Cavanor, F. T.	Minneapolis
Cedarleaf, C. B.	Minneapolis
Ceder, E. T.	**Minneapolis**
Ceplecha, S. F.	**Redwood Falls**
Cervenka, C. F.	New Prague
Chadbourn, C. R.	St. Paul
Chadbourn, W. A.	Litchfield
Chalgren, W. S.	Minneapolis
Challman, S. A.	Minneapolis
Chambers, W. C.	Blue Earth
Chance, D. P.	Rochester
Chapman, C. B.	Minneapolis
Chapman, T. L.	Duluth
Chatterton, C. C.	St. Paul
Chermak, F. G.	International Falls
Chesley, A. J.	Minneapolis
Childs, D. S., Jr.	Rochester
Chisholm, T. C.	Minneapolis
Christensen, C. H.	Duluth
Christensen, E. E.	Winona
Christensen, L. E.	Minneapolis
Christensen, N. A.	Rochester
*Christenson, G. R.	Minneapolis
Christiansen, Andrew	St. Paul
Christiansen, H. A.	**Jackson**
Christianson, H. W.	Minneapolis
Christie, D. P.	Rochester
Christoferson, Lee A.	Rochester
Chunn, S. S.	Pipestone
Clagett, O. T.	Rochester
Clark, E. A.	Duluth
Clark, H. B.	St. Cloud
Clark, H. B., Jr.	Minneapolis
Clark, I. T.	**Duluth**
Clark, L. W.	Spring Valley
Clark, P. L., III	Rochester
Clarke, E. K.	Minneapolis
Clay, L. B.	**Minneapolis**
Claydon, H. F.	Red Wing
Cleaves, W. D.	**Sauk Centre**
†Clement, J. B.	Lester Prairie
Clifford, G. W.	Alexandria
Clifton, T. A.	Chatfield
Closuit, F. C.	**Aitkin**
Clothier, E. F.	Elk River
Cochrane, B. B.	Red Wing
Cochrane, R. F.	Minneapolis
Coddon, W. D.	St. Paul
Coe, J. I.	Minneapolis
Cohen, B. A.	Minneapolis
Cohen, E. B.	Minneapolis
Cohen, E. N.	St. Paul
Cohen, M. M.	Minneapolis
Cohen, S. S.	Minneapolis
Colby, M. Y., Jr.	Rochester
Colby, W. L.	St. Paul
Cole, J. P.	Rochester
Cole, W. H.	St. Paul
Coll, J. J.	Duluth
†Collie, H. G.	St. Petersburg, Fla.
†**Collins, A. N.**	**Moose Lake**
*†Collins, H. C.	Duluth
Collins, J. S.	Wabasha
Colp, E. A.	Robbinsdale
Combacker, L. C.	Fergus Falls
Comfort, M. W.	Rochester
‡Condit, W. H.	Minneapolis
Conley, F. W.	Duluth
Connolly, C. J.	**St. Paul**
Connor, C. E.	St. Paul
Cook, C. K.	St. Paul
Cook, E. N.	Rochester
Cook, J. M.	Staples
Coombs, C. H.	Cass Lake
Colley, J. C.	Rochester
Cooper, C. C.	St. Paul
Cooper, I. S.	Rochester
Cooper, J. P.	**Excelsior**
Cooper, M. D.	Winnebago
Cooper, Talbert	Rochester
Cope, H. B.	Virginia
†Corbett, J. F.	Minneapolis
Corbin, K. B.	Rochester
Carcoran, C. E.	Chicago, Ill.
Corniea, A. D.	Minneapolis
Correa, D. H.	**Minneapolis**
†Corrigan, J. E.	Spooner
Crosgriff, J. A., Sr.	Olivia
Crosgriff, J. A., Jr.	Olivia
Coulter, H. E.	Madelia
Counseller, V. S.	Rochester
Countryman, R. S.	St. Paul

Covell, W. W.	St. Peter
Coventry, M. B.	Rochester
Coventry, W. A.	Duluth
Coventry, W. D.	Duluth
Covey, K. W.	Mahnomen
Cowan, D. W.	Minneapolis
Cowern, E. W.	No. St. Paul
Craig, C. C.	International Falls
Craig, D. M.	St. Paul
Craig, M. E.	Minneapolis
Craig, W. McK.	Rochester
Cranmer, R. R.	Minneapolis
Cranston, R. W.	Minneapolis
Creevy, C. D.	Minneapolis
Crehan, E. L.	Rochester
Creighton, R. H.	Minneapolis
Crenshaw, J. L.	Rochester
Crenshaw, J. L., Jr.	Rochester
Critchfield, L. R.	St. Paul
Crombie, F. J.	No. St. Paul
Cronwell, B. J.	Austin
Crow, E. R.	Ah-Gwah-Ching
Crowley, J. H.	St. Paul
Crudo, V. D.	St. Paul
Crump, J. W.	St. Paul
Crumpacker, E. L.	Rochester
Culligan, J. M.	St. Paul
Culligan, L. C.	Minneapolis
Culmer, C. U.	Chicago, Ill.
Culver, L. G.	St. Paul
Cundy, D. T.	Minneapolis
Curtis, R. A.	Le Center
Curtiss, R. K.	Rochester
Cushing, R. L.	Brainerd
Cutts, George	Minneapolis

Dack, L. G.	St. Paul
Dady, E. E.	Minneapolis
Daehlin, Rolf	Fergus Falls
Dahl, E. O.	Minneapolis
†Dahl, G. A.	Mankato
Dahl, J. A.	Minneapolis
Dahle, M. B.	Olivia
Dahlin, D. C.	Rochester
Dahlstet, J. P.	No. Mankato
Daignault, O.	Benson
Dale, L. N.	Red Lake Falls
Danford, K. A.	Mahnomen
Daniel, D. H.	Minneapolis
Danielson, K. A.	Litchfield
Danielson, Lennox	Litchfield
Dargay, C. P.	Minneapolis
Daugherty, E. B.	Marine-on-St. Croix
Daugherty, G. W.	Rochester
Davis, A. C.	Rochester
Davis, E. V.	St. Paul
Davis, G. D.	Rochester
Davis, I. G.	Rushford
Davis, J. C.	Minneapolis
Davis, L. T.	Wadena
Davis, L. F.	Wadena
Davis, R. M.	Rochester
Davis, Robert E.	Rochester
Davis, R. D.	Waseca
Davis, T. C.	Wadena
Davis, T. L.	Wadena
Davis, W. I.	Mound
Day, L. A.	St. Paul
Dearing, W. H., Jr.	Rochester
DeBoer, Hermanus	Edgerton
Decker, C. H.	St. Paul
Decker, D. G.	Rochester
Dederick, G. F., Jr.	Rochester
Dedolph, Karl	St. Paul
Dedolph, T. H.	Minneapolis
DeForest, R. E.	Rochester
Delmore, J. L.	Roseau
Delmore, J. L., Jr.	Roseau
Delmore, R. J.	Roseau
del Plaine, C. W.	Minneapolis
Demo, R. A.	Albert Lea
Denman, A. V.	Mankato
Dennis, Clarence	Minneapolis
Derauf, B. I.	St. Paul
Deters, D. C.	St. Paul
Detjen, E. D.	Bigfork
Devereaux, T. J.	Wayzata
Devine, K. D.	Rochester
Devney, J. W.	Rochester
DeWeerd, J. H., Jr.	Rochester
Deweese, W. J.	Bemidji
Dewey, D. H.	Owatonna
Dickson, F. H., Jr.	Proctor
Dickson, T. H.	St. Paul
Didcoct, J. W.	Rochester
Diehl, H. S.	Minneapolis
Diessner, G. R.	Rochester
Diessner, H. D.	Minneapolis
Dillard, P. G., Jr.	Rochester
Dille, D. E.	Litchfield
Dittrich, R. J.	Duluth
Dixon, C. F.	Rochester
Dockerty, M. B.	Rochester
Dodds, Wm. C.	Detroit Lakes
Dodge, H. W., Jr.	Rochester
Dodge, Mark	Rochester
Doherty, E. M.	New Prague
Dolder, F. C.	Eyota
Doman, V. W.	Lakefield
Doms, H. C. A.	Slayton
Doms, Vernon A.	Slayton
Donaldson, C. S.	Foley
Donoghue, F. E.	Rochester
Donohue, P. F.	St. Paul
Donovan, D. L.	Albert Lea
Dordal, J.	Sacred Heart
Dorge, R. I.	Minneapolis
Dornberger, G. R.	Rochester
Dornblaser, H. B.	Minneapolis
Dorsey, G. C.	Minneapolis
Douglass, B. E.	Rochester
Doust, W. C.	Rochester
Dovre, C. M.	St. Paul
Dowidat, R. W.	Minneapolis
Doxey, G. L.	Minneapolis
Doyle, G. C.	Duluth
Doyle, L. O.	Minneapolis
Drake, C. B.	St. Paul
Drake, C. R.	Minneapolis
†Drake, F. A.	Lanesboro
Dredge, H. P.	Sandstone
Dredge, T. E.	Minneapolis
Drescher, E. P.	Berkeley, Calif.
Drexler, G. W.	Blue Earth
Drill, H. E.	Hopkins
¶Drips, D. G.	Rochester
†Drought, W. W.	Fergus Falls
Dry, T. J.	Rochester
Dubbe, F. H.	New Ulm
DuBois, J. F.	Sauk Centre
Du Bois, Julian F., Jr.	Sauk Centre
Duff, E. R.	Minneapolis
†Dumas, A. G.	Minneapolis
Duncan, D. K.	Rochester
Duncan, J. W.	Moorhead
†Dungay, N. S.	Northfield
Dunlap, E. H.	Minneapolis
Dunlap, R. W.	Rochester
*Dunn, G. R.	Minneapolis
Dunn, J. N.	St. Paul
DuPont, J. A.	Excelsior
Duryea, W. M.	Minneapolis
Du Shane, J. W.	Rochester
†Dutton, C. E.	Minneapolis
Dvorak, B. A.	Minneapolis
Dwan, P. F.	Minneapolis
Dwinnell, L. A.	Fergus Falls
Dworetzky, M.	Rochester
Dworsky, S. D.	Minneapolis
Dysterheft, A. F.	Gaylord

Earl, G. A.	St. Paul
Earl, J. R.	St. Paul
Earnest, F., III	Toledo, Ohio
Eaton, L. M.	Rochester
Eberley, T. S.	Benson
†Eberlin, E. A.	Glenwood
Eby, Lee G.	Rochester
Eckdale, J. E.	Marshall
Eckles, N.	Minneapolis
Eckman, P. F.	Duluth
Eckman, R. J.	Duluth
Eckstam, E. E.	Rochester
Edlund, Gustaf	St. Paul
Edwards, Jessie E.	Rochester
Edwards, J. W.	St. Paul
Edwards, L. G.	St. Paul
†Edwards, R. T.	Columbus, Ohio
Edwards, T. J.	St. Paul
Egge, Sanford G.	Albert Lea
Eginton, C. T.	St. Paul
Ehrenberg, C. J.	Minneapolis
Ehrlich, S. P.	Minneapolis
Eich, Matthew	Minneapolis
Eide, O. A.	Hancock
Eiler, John	Park Rapids
Eisenman, Walter	Coleraine
Eisenstadt, D. H.	Minneapolis
Eisenstadt, W. S.	Minneapolis
Eitel, G. D.	Minneapolis
Ekblad, J. W.	Duluth
Ekstrand, L. M.	Wabasha
Elias, F. J.	Duluth
Elkins, E. C.	Rochester
Ellingson, A. R.	Detroit Lakes
Elliott, J. A., Jr.	Rochester
Ellis, E. W.	Elgin
Ellis, Eugene J.	Rochester
Ellis, F. H.	Rochester
Ellison, D. E.	Minneapolis
Ellison, F. E.	Monticello
Elsey, E. M.	Glenwood
†Elsey, J. R.	Glenwood
Ely, O. S.	So. St. Paul
Emanuel, K. W.	Duluth
Emerson, E. C.	St. Paul
Emerson, E. E.	Osakis
Emmett, J. L.	Rochester
Emond, A. J.	Farmington
Emond, J. S.	Farmington
Endress, E. K.	St. Paul
Engberg, E. J.	Faribault
Engel, J. P.	Rochester
Engelhart, P. C.	Minneapolis
Engels, E. P.	Spring Valley
†Englund, E. F.	Minneapolis
Engstrand, O. J.	Minneapolis
Engstrom, G. F.	Belgrade
Engstrom, Robert	Mankato
Enroth, O. E.	St. Paul
Eppard, R. M.	Cloquet
Epperson, D. P.	Rochester
Erdal, Ove A.	Albert Lea
Erich, J. B.	Rochester
Erickson, A. O.	Long Prairie
Erickson, C. O.	Minneapolis
Erickson, D. J.	Rochester
Erickson, Eskil	Halstad
Erickson, L. F.	Minneapolis
Erickson, R. F.	Minneapolis
Ericson, R. M.	Minneapolis
Ericson, Swan	Le Sueur
Ernest, G. C. H.	St. Petersburg, Fla.
Ersfeld, M. P.	St. Paul
Erskine, G. M.	Grand Rapids
Ertel, E. Q.	Ellendale
†Eshelby, E. C.	St. Paul
*Esser, John	Perham
Esser, O. J.	New Ulm
Esser, R. A.	Rochester
Estes, J. E.	Rochester
Estrem, C. O.	Fergus Falls
Estrem, R. D.	Fergus Falls
Estrem, T. A.	Hibbing
Eusterman, G. B.	Rochester
Eustermann, J. J.	Mankato
Evans, E. T.	Minneapolis
Evans, L. M.	Sauk Rapids
†Evarts, A. B.	Rochester
Evert, J. A.	St. Paul
Ewens, H. B.	Virginia
Eyster, W. H., Jr.	Rochester

Faber, J. E.	Rochester
†Fahey, E. W.	St. Paul
Fahr, G. E.	Minneapolis
Fait, R. V.	Little Falls
Falsetti, F. P.	Rochester
Fansler, W. A.	Minneapolis
Farkas, J. V.	St. Paul
†Farrish, R. C.	Sherburn
Faulconer, Albert, Jr.	Rochester
Faulkner, J. W.	Rochester
Fawcett, A. M.	Renville
Fawcett, K. R.	Duluth
Fearing, J. E.	Minneapolis
Fee, John G.	St. Paul
Feeney, J. M.	Minneapolis
Feigal, D. W.	Wayzata
Feigal, W. M.	Thief River Falls
Feinstein, J. Y.	Minneapolis
Felion, A. J.	St. Paul
Fellows, M. F.	Duluth
Fenger, E. P. K.	Oak Terrace
†Ferguson, J. C.	St. Paul
Ferguson, W. C.	Walnut Grove
Ferrell, C. R.	Grand Rapids
Ferris, D. O.	Rochester
Fensenmaier, O. B.	New Ulm
Fessler, H. H.	St. Paul
Field, A. H.	Farmington
Figi, F. A.	Rochester
Fine, B. A.	Crosby
Fingerman, D. L.	Minneapolis
Fink, D. L.	St. Paul
Fink, L. W.	Minneapolis
Fink, W. H.	Minneapolis
Finkelnburg, W. O.	Winona
Fisch, H. M.	Austin
Fischer, M. McC.	Duluth
Fisher, C. E.	Rochester
Fisher, Dan W.	St. Paul
Fisher, I. I.	Minneapolis
Fisher, J. M.	Willmar
Fisketti, Henry	Duluth
†Fitzgerald, D. F.	Wayzata
†Fitzgerald, E. T.	Morris
Fitzpatrick, T. B.	Rochester
Fitzsimons, W. E.	Brainerd
Fjeldstad, C. A.	Minneapolis
Flanagan, H. F.	St. Paul
Flanagan, L. G.	Austin
Flancher, L. H.	Lake Park
Flannery, Hubert F.	St. Paul
Flautt, J. R., Jr.	Louisville, Ky.
Fleeson, W. H.	Minneapolis
†Fleming, A. S.	Minneapolis
Fleming, D. S.	Minneapolis
Fleming, T. N.	St. Cloud

Flesche, B. A.	Lake Citv
Flink, E. B.	Minneapolis
Flinn, J. B.	Redwood Falls
Flinn, T. E.	Remer
Flom, M. G.	Zumbrota
Flom, R. P.	St. Paul
Flynn, B. F.	**Hibbing**
†Fogarty, C. W.	St. Paul
Fogarty, C. W., Jr.	St. Paul
Fogelberg, E. J.	**St. Paul**
Foker, L. W.	Minneapolis
Foley, F. E. B.	St. Paul
Folken, F. G.	Albert Lea
Folsom, L. B.	Minneapolis
Ford, B. C.	Marshall
Ford, W. H.	Minneapolis
Forsythe, J. R.	St. Paul
Fortier, G. M. A.	Little Falls
Fortier, Rene G.	Marble
Foss, E. L.	Rochester
Foster, Orley W.	Minneapolis
Foster, W. K.	Minneapolis
Foulk, W. T.	Rochester
Fowler, L. H.	Minneapolis
Fox, James R.	Minneapolis
Franchere, F. W.	Lake Crystal
Francis, D. W.	Morristown
Frane, D. B.	Minneapolis
Frank, L. M.	Rochester
Franz, W. M.	Mountain Lake
Frear, Rosemary R.	**Minneapolis**
Fredericks, G. M.	Minneapolis
Frederickson, Alice C.	Willmar
Frederickson, G. U. Y.	Willmar
Fredlund, M. L.	Minneapolis
Fredricks, M. G.	**Duluth**
†Freeman, C. D.	Balsam Lake, Wis.
Freeman, C. D., Jr.	St. Paul
Freeman, D. W.	Minneapolis
Freeman, J. G.	Rochester
†Freeman, J. P.	Glenville
Freidman, L. L.	St. Paul
Freligh, W. P.	Albert Lea
French, L. A.	Minneapolis
Fricke, R. E.	Rochester
Fricke, R. W.	Rochester
Fried, L. A.	Minneapolis
Friedell, Aaron	**Minneapolis**
Friedell, George	Ivanhoe
Friedman, H. S.	Minneapolis
Friedman, J.	Minneapolis
Friefeld, Saul	Brookings, So. Dak.
Friesleben, William	Sauk Rapids
Frisch, D. C.	Minneapolis
Frisch, F. P.	Willmar
Fritsche, Albert	New Ulm
Fritsche, C. J.	New Ulm
Fritsche, T. R.	New Ulm
Fritz, W. L.	St. Paul
Froats, C. W.	St. Paul
†Frost, E. H.	Willmar
Frost, J. B.	Minneapolis
Frost, R. H.	Oak Terrace
Frykman, H. M.	**Minneapolis**
Fugina, G. R.	Mankato
Fuller, Alice H.	Minneapolis
Fuller, B. F.	Rochester
Fuller, Josiah	Rochester
Funk, V. K.	Oak Terrace

Gaida, J. B.	St. Cloud
†Gaines, E. C.	Buffalo Lake
†Gallagher, B. J.	Waseca
Gallagher, W. B.	Waseca
†Galligan, Margaret M.	Minneapolis
Galloway, J. B.	Minneapolis
†Gambill, C. M.	Rochester
Gambill, E. E.	Rochester
Gammell, J. H.	Minneapolis
Garbrecht, A. W.	St. Paul
Gardiner, D. G.	St. Paul
Gardner, V. H.	Fairmont
Gardner, W. P.	St. Paul
Garlock, A. V.	Bemidji
Garlock, D. H.	**Bemidji**
Garrow, D. M.	St. Paul
Garten, J. L.	Minneapolis
Gastineau, C. F.	Rochester
Gaviser, David	Minneapolis
†*Geer, E. K.	St. Paul
Gehlen, J. N.	St. Paul
Geiser, P. M.	Alexandria
Geist, G. A.	St. Paul
Geraci, J. E.	Rochester
Gericke, J. T., Jr.	**Glenwood**
Ghent, C. H.	St. Paul
Ghormley, K. O.	Rochester
Ghormley, R. K.	Rochester
Ghostley, Mary C.	Puposky
Gibbons, F. C.	Comfrey
Gibbs, E. C.	St. Paul
Gibbs, R. W.	Minneapolis
Giebenhain, J. N.	**Minneapolis**
Giebink, R. R.	Minneapolis
Giere, J. C.	Minneapolis
Giere, R. W.	Minneapolis
Giere, S. W.	Benson
Giesen, A. F.	Starbuck
†Giessler, P. W.	Minneapolis
¶Giffin, H. Z.	Rochester
Giffin, Mary E.	Rochester
Gifford, R. W., Jr.	Rochester
Gilbert, L. W.	Rochester
Gilbert, M. G.	Minneapolis
*†Gilfillan, J. S.	St. Paul
Gilkey, S. E.	St. Paul
Gillespie, D. R.	St. Paul
Gillespie, M. G.	**Duluth**
Gilman, L. C.	Willmar
†Gilmore, Rowland	Bemidji
Gingold, B. A.	Minneapolis
Giroux, A. A.	**No. Mankato**
Girvin, R. B.	**Minneapolis**
Gjerde, W. P.	Lake City
Glabe, R. A.	Plainview
Glaeser, J. H.	Gibbon
Gleason, W. A.	**St. Paul**
Goblirsch, A. P.	Sleepy Eye
Goehrs, G. H.	St. Cloud
Goehrs, H. W.	St. Cloud
Goldberg, I. M.	Minneapolis
Goldish, D. R.	Duluth
Goldman, T. I.	Minneapolis
Goldner, M. Z.	Minneapolis
Goldsmith, J. W.	St. Paul
Goldstein, N. P.	Rochester
Goltz, E. V.	St. Paul
Goltz, Neil F.	St. Paul
Good, C. A., Jr.	Rochester
Good, H. D.	Minneapolis
Goodlad, J. H.	Rochester
Goodman, C. E.	Virginia
Gordon, P. E.	Minneapolis
Goss, H. C.	Glencoe
Goss, Martha D.	Glencoe
Gowan, L. R.	Duluth
Graham, A. W.	Chisholm
Graham, G. G.	Rochester
Grahek, J. P.	Ely
Grais, M. L.	Minneapolis
Gramse, A. E.	Springfield, Mass.
Grant, H. W.	St. Paul
Grant, J. C.	Sauk Center
Gratzek, F. R. E.	Minneapolis
Gratzek, Thomas	St. Paul
Grau, R. K.	St. Paul
Grave, Floyd	Minneapolis
Graves, R. B.	Red Wing
Graves, W. N.	Duluth
†Gray, F. D.	Marshall
Gray, H. K.	Rochester
Gray, R. C.	Minneapolis
Green, R. A.	Minneapolis
Greenberg, A. J.	Minneapolis
Greene, D. E.	Thief River Falls
Greene, L. F.	Rochester
Greenfield, W. T.	Delano
Gridley, J. W.	**Glencoe**
Griebe, Grant	Norwood
Griffin, G. D. J., Jr.	Rochester
Griffin, R. P.	Benson
Griffith, E. R.	Rochester
Grimes, B. P.	**St. Peter**
Grimes, Marian	Minneapolis
Grindlay, J. H.	Rochester
Grinley, A. V.	Grand Rapids
Grise, W. B.	Austin
Grogan, J. M.	**Ceylon**
‡Grogan, J. S.	Wadena
Gronvall, P. R.	Minneapolis
Groom, J. J.	Rochester
Groschupf, T. P.	Bemidji
Grose, F. N.	Clarissa
Gross, J. B.	**Rochester**
Grotting, J. K.	Minneapolis
Grugenhagen, A. P.	**St. Paul**
Grundset, O. J.	Montrose
Gruys, R. I.	Windom
Guernsey, D. E.	Rochester
Guilbert, G. D.	Legion, Texas
Guilfoile, P. J.	Delano
†Gullixson, A.	Albert Lea
Gully, R. J.	Cambridge
Gunlaugson, F. G.	Minneapolis
Gushurst, E. G.	Minneapolis
Gustason, H. T.	Minneapolis

Haavik, J. E.	Duluth
Habein, H. C.	Rochester
Haberer, Helen R.	**Minneapolis**
Haberle, C. A.	Duluth
Haberman, Emil	Osakis
Haes, J. E.	**Mankato**
Hagedorn, A. B.	Rochester
Hagen, O. J.	Moorhead
Hagen, P. S.	St. Paul
Hagen, W. S.	**Minneapolis**
†Haggard, G. D.	Minneapolis
†Haines, J. H.	**Stillwater**
Haines, S. F.	Rochester
Halbert, J. J.	Duluth
Halenbeck, P. L.	St. Cloud
Hall, A. M.	Minneapolis
Hall, B. E.	Rochester
Hall, H B.	Minneapolis
Hall, H. H.	St. Paul
Hall, W. E.	**Maple Lake**
Hall, W. H.	**Minneapolis**
Halladay, G. J.	Brainerd
Hallberg, C. A.	Minneapolis
Hallberg, O. E.	Rochester
Hallenbeck, D. F.	Rochester
Hallenbeck, G. A.	Rochester
Halliday, P. V.	Duluth
Hallin, R. P.	**Worthington**
Halloran, W. H.	Jackson
Halme, W. B.	**Cloquet**
Halpern, D. J.	**Brewster**
Halpin, J. E.	**Rush City**
Hammar, L. M.	Mankato
†Hammerstad, L. M.	Salem, Oregon
Hammes, E. M.	St. Paul
Hammes, E. M., Jr.	St. Paul
‡Hammond, A. J. H.	Minneapolis
Hammond, J. F.	St. Paul
‡Haney, C. L.	Duluth
Hankerson, R. G.	Minnesota Lake
Hanlon, D. G.	Rochester
Hannah, H. B.	Minneapolis
Hanover, R. D.	Littlefork
Hansen, C. O.	Minneapolis
Hansen, E. W.	Minneapolis
Hansen, Olga S.	Minneapolis
Hansen, R. E.	Hibbing
Hansen, T. M.	Albert Lea
†Hanson, A. M.	Faribault
Hanson, E. O.	Cloquet
Hanson, E. C.	New York Mills
Hanson, H. B.	St. Paul
Hanson, H. H.	Rochester
Hanson, H. J.	Minneapolis
Hanson, H. V.	Minneapolis
Hanson, J. W.	Northfield
Hanson, Lewis	Frost
Hanson, M. B.	**Minneapolis**
Hanson, N. O.	Rochester
Hanson, W. A. H.	Minneapolis
Happe, L. J.	Minneapolis
Hargraves, M. M.	Rochester
Harmon, G. F.	St. Paul
Hornagel, E. E.	Rochester
Harriman, Leonard	Howard Lake
Harrington, S. W.	Rochester
Harris, C. N.	Hibbing
Harris, Evelyn S.	Fergus Falls
Harris, L. E.	Rochester
Harrison, P. W.	Worthington
Hart, V. L.	Minneapolis
Hart W. E.	Monticello
Hartfiel, H. A.	Montevideo
Hartfiel, W. F.	St. Paul
Hartig, Hermina A.	Minneapolis
Hartig, Marjorie	St. Paul
Hartien, J. K.	Bemidj
Hartley, E. C.	St. Paul
Hartman, H. R.	Rochester
Hartnagel, G. F.	Red Wing
Hartung, E. H.	Claremont
Hartwich, R. F.	Winona
†Hartzell, T. B.	Minneapolis
Haskell, A. D.	Alexandria
Hass, F. M.	Jordan
Hassett, M. F.	St. Paul
Hassett, R. G.	Mankato
Hastings, D. R.	Minneapolis
Hastings, D. W.	**Minneapolis**
Hatch, W. E.	Duluth
Hattox, T. S.	Rochester
Hauch, E. W.	**Rochester**
Hauge, E. T.	Minneapolis
Hauge, M. I.	Clarkfield
Haugen, G. W.	Minneapolis
Haugen, J. A.	Minneapolis
Hauser, G. W.	Minneapolis
Hauser, V. P.	St. Paul
Havel, R. J.	Minneapolis
Haven, W. K.	Minneapolis
Havens, F. Z.	Rochester
Havens, J. G. W.	Austin
Hawkinson, R. P.	Minneapolis
Hawley, G. M., III	Red Wing
Hayes, A. F.	St. Paul
Hayes, D. W.	Rochester
Hayes, E. R.	Minneapolis
Hayes, J. M.	Minneapolis
Hayes, M. F.	Nashwauk

Hayles, A. B.	Lincoln, Nebr.
Haynes, A. L.	**Rochester**
Hays, A. T.	Minneapolis
Head, D. P.	Minneapolis
*Head, D. G.	Minneapolis
Healey, R. T.	Pierz
Hebbel, Robert	Minneapolis
Hebeisen, M. B.	Chaska
Heck, F. J.	Rochester
Heck, W. E.	Rochester
Heck, W. W.	St. Paul
Hedback, A. E.	Minneapolis
Hedberg, G. A.	Nopeming
Hedemark, H. H.	**Ortonville**
Hedemark, T. A.	**Ortonville**
Hedenstrom, F. G.	St. Paul
Hedenstrom, L. H.	Cambridge
Hedenstrom, P. C.	Marshall
Hedin, R. F.	Red Wing
Hegge, O. H.	Austin
Hegge, R. S.	Austin
Heiam, W. C.	Cook
Heiberg, E. A.	Fergus Falls
Heiberg, O. M.	**Worthington**
Heilman, D. M. H.	Rochester
Heilman, F. R.	Rochester
Heim, R. R.	Minneapolis
Heimark, J. J.	Fairmont
Heinz, I. B.	Shakopee
Heinz, L. H.	Shakopee
Heise, C.	Winona
Heise, Herbert	Winona
Heise, Paul	Winona
Heise, P. R.	Winona
Heise, W. F. C.	**Winona**
Heise, W. V.	Winona
Heisler, J. J.	Minneapolis
Helferty, J. K.	**Minneapolis**
Helland, G. M.	Spring Grove
Helland, J. W.	Spring Grove
Heller, B. I.	Minneapolis
Helmholz, H. F.	Rochester
Hemstead, B. E.	Rochester
Hemstead, W.	Minneapolis
Hench, P. S.	Rochester
Henderson, A. J. G.	St. Paul
Henderson, E. D.	Rochester
Henderson, J. W.	Rochester
Henderson, M. S.	Rochester
Hendricks, E. J.	St. Paul
Hendrickson, J. F.	Minneapolis
Hendrickson, R. R.	Crookston
Hengstler, W. H.	St. Paul
Hennessy, Mary E.	Muskegon Heights, Mich
Henney, W. H.	McIntosh
Henrikson, E. C.	Minneapolis
Henry, C. J.	Milaca
Henry, C. E.	Kirksville, Mo.
Henry, J. E.	Milaca
Henry, M. O.	Minneapolis
Hensel, C. N.	St. Paul
Henslin, A. E.	Cresco, Iowa
Herbert, W. L.	Minneapolis
Herbst, R. F.	Willmar
Herman, S. M.	St. Paul
Hermann, H. W.	Minneapolis
Hermanson, P. E.	Hendricks
Heron, R. C.	St. Paul
Herrell, W. E.	Rochester
Herrmann, E. T.	St. Paul
Hertel, G. E.	Austin
Hertz, M. J.	St. Paul
Hesdorffer, M. B.	**Minneapolis**
Hetherington, J. A.	Indianapolis, Ind.
Hewitt, Edith S.	Rochester
Hewitt, R. M.	Rochester
Heyerdale, O. C.	Rochester
Higgins, J. H.	Minneapolis
Higgs, W. W.	Park Rapids
Hightower, N. C., Jr.	**Rochester**
Hildebrand, C. H.	Seattle, Wash.
Hilding, A. C.	Duluth
Hilger, A. W.	St. Paul
Hilger, D. D.	St. Paul
Hilger, J. A.	St. Paul
Hilger, L. D.	St. Paul
Hilker, M. D.	St. Paul
Hill, A. J., Jr.	Minneapolis
Hill, Earl	Minneapolis
Hill, E. M.	Minneapolis
Hill, F. E.	Duluth
Hill, J. R.	Rochester
Hill, W. C.	Pequot Lakes
Hillis, S. J.	St. Paul
Hills, O. W.	Rochester
Hilsabeck, J. R.	Rochester
Hinckley, R. G.	Minneapolis
Hines, C. R., Jr.	Rochester
Hines, E. A., Jr.	Rochester
Hiniker, L. P.	St. Paul
Hiniker, P. J.	Le Sueur
Hinz, W. E.	Bird Island
Hirschboeck, F. J.	Duluth
Hirshfield, F. R.	Minneapolis
†Hitchcock, C. R.	Minneapolis
Hitchings, W. S.	Lakefield
†Hoaglund, A. W.	Los Angeles, Calif.
Hochfilzer, J. J.	St. Paul
Hodapp, R. J.	Willmar
Hodapp, R. V.	Willmar
Hodgson, C. H.	Rochester
Hodgson, J. E.	St. Paul
Hodgson, J. R.	Rochester
Hoeper, P. G.	Mankato
Hoff, H. O.	Duluth
Hoffbauer, F. W.	St. Paul
Hoffert, H. E.	Minneapolis
Hoffman, M. S.	Rochester
Hoffman, R. A.	Minneapolis
Hoffman, W. L.	Minneapolis
Hoganson, D. E.	Bemidji
Hogben, C. A. M.	Rochester
Hoidale, A. D.	Tracy
Holcomb, J. T.	Marine-on-St. Croix
Holcomb, O. W.	St. Paul
Holland, C. R.	Rochester
†Hollands, W. H.	Fisher
Hollenhurst, R. W.	Rochester
Hollinshead, W. H.	**St. Paul**
Holm, H. H.	Glencoe
†Holm, P. F.	**Wells**
Holman, Colin B.	Rochester
Holmberg, C. J.	Minneapolis
Holmberg, L. J.	Canby
Holmen, R. W.	St. Paul
Holmes, A. E.	Rush City
Holmstrom, C. H.	Warren
Holt, J. E.	St. Paul
Holzapfel, F. C.	Minneapolis
Hom, L. Y. W.	Monticello
Hood, R. T.	Rochester
†Hopkins, G. W.	St. Paul
Horan, M. J.	New York, N. Y.
Horns, R. C.	Minneapolis
Horton, B. T.	Rochester
Hottinger, R. C.	Janesville
†Houkom, Bjarne	T. T. East Africa
Houkom, S. S.	Duluth
Houle, Rollin J.	St. Cloud
†House, Z. E.	**Burbank, Calif.**
Houston, D. M.	Park Rapids
Hovde, Rolf	Winthrop
Hovland, M. L.	Minneapolis
Howard, E. G.	**Mapleton**
Howard, M. I.	Mankato
Howard, M. A.	St. Paul
Howard, S. E.	**Minneapolis**
Howard, W. S.	St. Paul
Howe, N. W.	**St. Paul**
Howell, L. P.	Rochester
Hoyer, L. J.	Windom
Hubbard, O. E.	Brainerd
Hubin, E. G.	Sandstone
Hubler, W. L.	Rochester
Hudec, E. R.	Echo
Hudson, G. E.	Minneapolis
Huenekens, E. J.	Minneapolis
Huffington, H. L.	Mankato
Hugenberg, W. C.	Rochester
Huizenga, K. A.	Rochester
Hullsiek, H. E.	St. Paul
Hullsiek, R. B.	St. Paul
Hultgen, W. J.	St. Paul
†Hultkrans, J. C.	Minneapolis
Hultkrans, R. E.	Minneapolis
Humphrey, E. W.	Moorhead
Humphrey, W. R.	Stillwater
Hunt, A. B.	Rochester
Hunt, R. C.	Fairmont
Hunt, R. S.	Fairmont
†Hunte, A. F.	Alhambra, Calif.
Hunter, J. S.	Rochester
Hunter, R. C.	Rochester
†Hurd, Annah	**Minneapolis**
Hursh, P. W.	Slayton
Hurwitz, M. M.	St. Paul
‡Hutchinson, C. J.	Mare Island, Calif.
Hutchinson, D. W.	Oak Terrace
Hutchinson, Henry	Moose Lake
†Huxley, F. R.	Faribault
Hymes, Charles	Minneapolis
†Hynes, J. E.	Minneapolis
†Ide, A. W.	St. Paul
Idstrom, L. G.	Wayzata
Ikeda, Kano	St. Paul
Ingalls, E. G., Jr.	Minneapolis
Ingebrigtson, E. K. G.	Moorhead
Ingerson, C. A.	St. Paul
Irvine, H. G.	Minneapolis
Iverson, R. M.	**Minneapolis**
Ivins, J. C.	**Rochester**
Ivy, J. H.	Rochester
Jackman, R. J.	Rochester
Jackson, H. S.	Richmond, Va.
Jacobs, D. L.	Willmar
Jacobs, G. C.	Fergus Falls
†Jacobs, J. C.	Willmar
Jacobson, Clarence	**Chisholm**
Jacobson, C. W.	Breckenridge
Jacobson, F. C.	**Duluth**
Jacobson, W. E.	Minneapolis
James, E. M.	Minneapolis
Jamison, R. W.	Walla Walla, Wash.
Jampolis, R. W.	Rochester
Janecky, A. G.	Baudette
Janes, J. M.	Rochester
Janssen, M. E.	Crookston
Jarrett, Paul S.	Rochester
Jennings, D. T.	Rochester
Jensen, A. M.	Brownton
Jensen, A. R.	Crookston
Jensen, G. L.	Rochester
Jensen, H. C.	Minneapolis
†Jensen, M. J.	Minneapolis
Jensen, N. K.	**Minneapolis**
Jensen, R. A.	**Minneapolis**
Jensen, T. J.	Duluth
Jenson, J. E.	Stillwater
Jerome, B.	Minneapolis
Jeronimus, H. J.	Duluth
Jesion, J. W.	St. Paul
Jessico, C. M.	Duluth
Jeub, R. P.	Minneapolis
Joffe, H. H.	**Duluth**
Johanson, W. G.	St. Paul
Johnson, A. B.	**Rochester**
Johnson, A. B.	Minneapolis
Johnson, A. E.	Minneapolis
Johnson, August E.	Minneapolis
Johnson, A. F.	Sanborn
Johnson, A. M.	Rochester
Johnson, A. M.	St. Paul
Johnson, C. E.	Rochcester
†Johnson, C. E.	St. Paul
Johnson, C. E.	St. Paul
Johnson, C. E.	St. Paul
Johnson, C. P.	**Tyler**
Johnson, C. M.	Jackson
Johnson, D. A.	Rochester
Johnson, D. L.	**Little Falls**
Johnson, E. A.	**Thief River Falls**
Johnson, E. W.	Bemidji
Johnson, E. W., Jr.	**Rochester**
Johnson, E. W.	Minneapolis
Johnson, Evelyn V.	**Minneapolis**
Johnson, Hans	Kerkhoven
Johnson, H. A.	**Minneapolis**
Johnson, H. A.	Rochester
Johnson, H. C.	North Mankato
Johnson, H. C.	**Thief River Falls**
Johnson, H. W.	**Rochester**
Johnson, J. A.	Minneapolis
Johnson, J. W.	**Minneapolis**
Johnson, Julius	Minneapolis
Johnson, K. E.	Duluth
Johnson, K. J.	Bemidji
Johnson, M. A.	Storden
Johnson, M. I.	Rochester
Johnson, M. R.	Minneapolis
†Johnson, N. A.	**Santa Monica, Calif.**
Johnson, N. P.	Minneapolis
Johnson, N. T.	Minneapolis
Johnson, O. H.	Redwood Falls
Johnson, Olga H.	Moorhead
Johnson, R. B.	Lanesboro
Johnson, R. G.	Minneapolis
Johnson, R. G.	Stillwater
Johnson, Reuben A.	Minneapolis
Johnson, R. E.	Mankato
Johnson, R. E.	Minneapolis
Johnson, S. M.	Wadena
Johnson, V. M.	Dawson
Johnson, W. E.	Morgan
Johnson, Y. T.	Minneapolis
Johnsrud, L. W.	Chisholm
Johnston, L. F.	Winona
‡Johnston, R. O.	Hibbing
Johnstone, W. W.	**Ah-Gwah-Ching**
Jolin, F. M.	Bovey
†Jones, A. W.	Red Wing
Jones, E. M.	St. Paul
Jones, G. W.	Rochester
†Jones, H. W., Jr.	**Minneapolis**
Jones, O. H.	Mankato
Jones, Richard	St. Paul
Jones, R. N.	St. Cloud
Jones, W. R.	Minneapolis
†Jordan, Kathleen	Granite Falls
Jordan, L. S.	Granite Falls
Jordan, R. A.	Rochester
Josewich, Alexander	Minneapolis
Josewski, R. J.	Stillwater
Josselson, A. J.	Rochester
Joyce, G. L.	Rochester

Joyce, G. T.	**Rochester**
Judd, E. S., Jr.	Rochester
Judd, W. H.	Washington, D. C.
Juergens, H. M.	Belle Plaine
Juergens, M. F.	Stillwater
Juers, E. H.	Red Wing
Juliar, R. O.	**St. Clair**
Jurdy, M. J.	Minneapolis
Just, Herman J.	**Hastings**

Kaasa, L. J.	St. Peter
Kabrick, O. A.	**St. Peter**
Kahiher, Howard	**Pelican Rapids**
Kalin, O. T.	Minneapolis
Kallestad, L. L.	**Brownton**
Kamman, G. R.	St. Paul
Kanne, E. R.	Brainerd
Kaplan, D. H.	St. Paul
Kaplan, J. H.	Rochester
Kaplan, J. J.	**Minneapolis**
Kapsner, A. T.	Princeton
Karleen, B. N.	**Jackson**
Karleen, C. I.	Minneapolis
Karlstrom, A. E.	Minneapolis
Karn, J. F.	Ortonville
Karon, I. M.	St. Paul
Kasper, E. M.	St. Paul
Kath, R. H.	Wood Lake
Katz, L. J.	Hot Springs, So. Dak.
†Katzovitz, Hyman	St. Paul
Kaufman, E. J.	Appleton
Kaufman, H. J.	Minneapolis
Kaufman, W. B.	Mankato
Kaufman, W. C.	Appleton
Kearney, R. W.	Mankato
Keates, A. E.	Rochester
Keating, F. R., Jr.	Rochester
Keating, J. U.	**Rochester**
Keefe, R. E.	St. Paul
Keil, M. A.	Mankato
Keith, H. M.	Rochester
Keith, N. M.	Rochester
Keithahn, E. E.	Sleepy Eye
Kelby, G. M.	Minneapolis
Kelley, E. P.	**Rochester**
Kelley, K. J.	Litchfield
Kelly, A. C.	**Duluth**
Kelly, A. H.	Rochester
Kelly, J. F.	Cold Spring
Kelly, J. P.	**Minneapolis**
Kelly, J. V.	St. Paul
Kelsey, C. M.	St. Paul
Kelsey, J. R.	**Rochester**
Kemp, A. F.	Mankato
Kenefick, E. V.	St. Paul
Kennedy, C. C.	Minneapolis
Kennedy, G. L.	**Faribault**
†Kennedy, J. F.	Minneapolis
Kennedy, R. L. J.	Rochester
Kennedy, T. V. A.	Rochester
Kennedy, W. A.	St. Paul
Kenyon, T. J.	**St. Paul**
Kerkhof, A. C.	Minneapolis
Kernohan, J. W.	Rochester
Kertesz, G.	Minneapolis
Kesting, Herman	St. Paul
Kevern, J. L.	Henning
Keyes, J. D.	Winona
Kiely, W. F.	**Rochester**
Kierland, R. R.	Rochester
Kiesler, F., Jr.	Minneapolis
Kilbride, E. A.	Worthington
†Kilbride, J. S.	**Worthington**
Kimbrough, R. F.	Rochester
Kimmel, G. C., Jr.	Red Wing
†King, E. A.	**Minneapolis**
King, F. W.	Oak Terrace
King, G. L.	St. Paul
Kinkade, B. R.	Ada
Kinports, E. B.	International Falls
Kinsella, T. J.	Minneapolis
Kirby, T. J., Jr.	**Rochester**
†Kirk, G. P.	East Grand Forks
Kirklin, B. R.	**Rochester**
Kirklin, J. W.	Rochester
Kistler, A. J.	Minneapolis
Kitzberger, P. J.	New Ulm
Kleckner, M. S.	Rochester
Klefstad, L. H.	**Greenbush**
Klein, Harry	Duluth
Klein, H. N.	St. Paul
Klein, Wm. A.	**Duluth**
Klima, W. W.	Stewart
Kline, R. F.	Montgomery
Knapp, F. N.	Duluth
Knapp, M. E.	Minneapolis
Knight, C. D.	**Rochester**
Knight, E. G.	**Swanville**
Knight, R. R.	**Minneapolis**
Knight, R. T.	Minneapolis
Knoche, H. A.	Morgan
Knoll, W. V.	**Duluth**
Knudsen, H. L.	**Minneapolis**
Knudson, R. A.	**Forest Lake**
Knutson, G. A.	**Hallock**
Knutson, G. E.	**St. Paul**
Knutson, J. R. B.	**Rochester**
Knutson, L. A.	**Spring Grove**
Knutson, R. C.	Rochester
Koelsche, G. A.	**Rochester**
Koenigsberger, Charles	**Mankato**
Koepcke, G. M.	Minneapolis
Kohlbry, C. O.	Duluth
Kolars, J. J.	Faribault
Koller, H. M.	Minneapolis
Koller, L. R.	Minneapolis
Koop, S. H.	Richmond
Korchik, J. P.	Minneapolis
Korda, H. A.	Pelican Rapids
Kortsch, F. P.	Prior Lake
Koskela, A. L.	Deer River
Koskela, L. E.	Deer River
Kostick, W. R.	Fertile
Koszalka, M. F.	Minneapolis
Kotchevar, F. R.	Eveleth
Kottke, F. J.	Minneapolis
Kotval, R. J.	Pipestone
Koucky, R. W.	Minneapolis
Koza, Donald W.	Rochester
Krakowka, G. F.	Rochester
Krause, C. W.	Fairmont
Kremen, A. J.	Minneapolis
Kreuzer, T. C.	Marshall
Krieser, A. E.	Anoka
Krueger, V. R.	Nopeming
Krusen, E. M.	Rochester
Kruzick, S. J.	Sleepy Eye
Krusen, F. H.	Rochester
Krystosek, L. A.	Clara City
Kucera, F. J.	**Hopkins**
Kucera, L. B.	Lonsdale
Kucera, S. T.	Northfield
Kucera, W. J.	Minneapolis
Kugler, A. A.	St. Paul
Kuhlmann, L. B.	Melrose
Kulwin, M. H.	Rochester
Kurtin, H. J.	Blooming Prairie
Kuske, A. W.	St. Paul
Kusske, A. L.	New Ulm
Kusske, B. W.	New Ulm
Kvale, W. F.	Rochester
Kvitrud, Gilbert	St. Paul

LaBree, J. W.	Minneapolis
LaBree, R. H.	Duluth
Lagaard, S. M.	Minneapolis
Laikola, L. A.	Adrian
Laird, A. T.	Duluth
Lajoie, J. M.	Minneapolis
Lake, C. F.	Rochester
Lamp, C. B., Jr.	Rochester
Lang, C. M.	Rochester
Lang, L. A.	Minneapolis
Langhoff, A. H.	**Mankato**
Lannin, B. G.	St. Paul
Lannin, J. C.	Mabel
Lannin, D. R.	St. Paul
Lapierre, A. P.	Minneapolis
Lapierre, J. T.	Minneapolis
Larsen, C. L.	St. Paul
Larsen, F. W.	Minneapolis
Larson, Arnold	Detroit Lakes
Larson, C. M.	Minneapolis
Larson, Eva-Jane	St. Paul
Larson, J. T.	South St. Paul
Larson, K. R.	St. Paul
Larson, L. M.	Minneapolis
Larson, Leonard M.	Oak Terrace
Larson, Leroy	**Bagley**
Larson, L. J.	**Watertown**
Larson, M. H.	Nicollet
Larson, O. E. H.	Zumbrota
†Larson, P. G.	**Cleveland, Ohio**
Larson, P. N.	Minneapolis
Larson, R. H.	**Minneapolis**
Latterell, K. E.	Duluth
Laughlin, J. T.	Grey Eagle
La Vake, R. T.	Minneapolis
Law, S. G.	**Minneapolis**
Lay, C. L.	Rochester
Lax, M. H.	St. Paul
Laymon, C. W.	Minneapolis
†Lazar, H. L.	Excelsior
Leahy, Bartholomew	St. Paul
Leary, W. V.	**Rochester**
Leavenworth, R. O.	St. Paul
†Leavitt, H. H.	Mesa, Arizona
Lebowske, J. A.	Minneapolis
Leck, P. C.	Austin
Lecklitner, Myron D.	Minneapolis
Leden, U. M.	**Rochester**
Leddy, E. T.	Rochester
Lee, H. M.	Minneapolis
Lee, H. W.	**Brainerd**
Lee, M. J., Jr.	**Rochester**
Lee, N. J.	**St. Paul**
Leemhuis, A. J.	Minneapolis
Leggett, Elizabeth A.	Ah-Gawh-Ching
Leibold, H. H.	**Parkers Prairie**
Leick, R. M.	St. Paul
Leitch, Archibald	St. Paul
Leitschuh, T. H.	**Winsted**
Leland, H. R.	Minneapolis
Lemon, W. E.	Rochester
†Lemon, W. S.	**Rochester**
Lenander, M. E. L.	St. Peter
Lenarz, A. J.	**Browerville**
Lende, Norman	**Faribault**
Lengby, F. A.	Spring Lake
†Lenont, C. B.	Virginia
Lenz, J. R.	Morton
Lenz, O. A.	Minneapolis
Leonard, L. J.	Minneapolis
Leonard, Samuel	Minneapolis
Leopard, B. A.	Albert Lea
Lepak, F. J.	Duluth
Lepak, J. A.	St. Paul
†Lerche, William	Cable, Wis.
Lerner, A. R.	**Minneapolis**
Lester, M. J., Jr.	Fairmont
Leven, N. L.	St. Paul
Leverenz, C. W.	St. Paul
Levin, Bert	St. Paul
Levitt, G. X.	St. Paul
Lewis, A. J.	Henning
†Lewis, C. B.	St. Cloud
Lewis, C. W.	Henning
Lewis, Joyce S., Jr.	Nashwauk
Lexa, F. J.	Lonsdale
Libert, J. N.	St. Cloud
Lick, C. L.	St. Paul
Lick, Louis C.	Rochester
Liedloff, A. G.	Mankato
Lien, R. J.	**St. Paul**
Liffrig, W. W.	Red Wing
Lightbourn, E. L.	St. Paul
Lilleberg, N. J.	St. Paul
Lillehei, E. J.	**Robbinsdale**
Lillie, H. I.	Rochester
Lillie, J. C.	Rochester
Lillie, W. I.	**Rochester**
Lima, L. R., Jr.	Montevideo
Lind, C. J.	Minneapolis
Lind, C. J., Jr.	Munich, Germany
Lindberg, A. L.	Wheaton
Lindberg, A. C.	Minneapolis
Lindberg, V. L.	Minneapolis
†Lindberg, W. R.	Minneapolis
Lindblom, A. E.	**Minneapolis**
†Linde, Herman	**Cyrus**
Lindgren, R. C.	Minneapolis
Lindley, S. B.	Willmar
Lindquist, R. H.	Minneapolis
Linner, Gunnar	Minneapolis
Linner, H. P.	Minneapolis
†Linner, J. H.	Minneapolis
Linner, P. W.	Minneapolis
Lippman, E. S.	Minneapolis
Lippman, H. S.	St. Paul
Lippmann, E. W.	Hutchinson
Lipschultz, Oscar	Minneapolis
Lipscomb, P. R.	**Rochester**
Litchfield, J. T.	Minneapolis
Litin, E. M.	Rochester
Litman, A. B.	Minneapolis
Litman, S. N.	Duluth
Livermore, G. R.	**Rochester**
Locke, William	**Boston, Mass.**
Lofgren, K. A.	Rochester
Lofsness, S. V.	Minneapolis
Logan, A. H.	Rochester
Logan, G. B.	Rochester
Logefeil, R. C.	Minneapolis
Lohmann, J. G.	Pipestone
Loken, S. M.	St. Paul
Loken, Theodore	Ada
Lommen, P. A.	Austin
Longfellow, Helen B. W.	**Brainerd**
Longley, J. R.	Rochester
Longo, V. J.	Rochester
†*Loofbourrow, E. H.	Keewatin
Loomis, E. A.	Minneapolis
Loomis, G. L.	Winona
Lott, F. H.	**Minneapolis**
Love, F. A.	Carlos
Love, J. G.	Rochester
Lovett, Beatrice R.	**Oak Terrace**
Lowe, E. R.	So. St. Paul
Lowe, T. A.	So. St. Paul
Lowman, E. W.	**Rochester**
Lowry, Elizabeth C.	Minneapolis
Lowry, Thomas	Minneapolis
Lowy, A., Jr.	**Rochester**
Lucas, J. E.	**Rochester**
Luck, Hilda	**Mankato**
Luckemeyer, C. J.	**St. Cloud**
Lueck, W. W.	Minneapolis

Lufkin, N. H.	Minneapolis
Lund, C. J. T.	Fergus Falls
Lund, W. J.	Staples
Lundberg, Ruth I.	Minneapolis
Lundblad, R. A.	Minneapolis
Lundblad, S. W.	Minneapolis
Lundell, C. L.	Granite Falls
Lundgren, A. C.	Minneapolis
Lundholm, A. M.	St. Paul
Lundquist, C. W.	Owatonna
Lundquist, E. F.	Minneapolis
Lundy, J. S.	Rochester
Luth, D. V.	Duluth
Luttgens, W. F.	Rochester
Lynch, F. W.	St. Paul
Lynch, M. J.	Minneapolis
Lynde, O. G.	Thief River Falls
Lysne, Henry	Minneapolis
Lysne, Myron	Minneapolis

MacCarty, C. S.	Rochester
MacCarty, W. C.	Rochester
MacDonald, A. E.	Minneapolis
MacDonald, D. A.	Minneapolis
MacDonald, R. A.	Littlefork
MacFarlane, E. B.	Rochester
MacFarlane, P. H.	Chisholm
Mach, F. B.	Minneapolis
Mach, R. F.	Rush City
MacKinnon, D. C.	Minneapolis
Macklin, W. E., Jr.	Willmar
MacLean, A. R.	Rochester
Macnie, J. S.	Minneapolis
MacRae, G. C.	Duluth
Madden, J. F.	St. Paul
Madland, R. S.	St. Paul
Maeder, E. C.	Minneapolis
Maertz, R. W.	Faribault
Maertz, W. F.	St. Paul
Magath, T. B.	Rochester
Magney, F. H.	Duluth
Magnuson, A. E.	Wheaton
Magraw, R. M.	St. Paul
Mahle, D. G.	Plainview
Mahowald, A.	Albany
Maino, V. J.	Rochester
Maitland, E. T.	Jackson
Maland, C. O.	Minneapolis
Malerich, J. A.	St. Paul
Malmstrom, J. A.	Virginia
Mankey, J. C.	Minneapolis
Mankin, H. W.	Rochester
Mann, F. C.	Rochester
Mann, F. D.	Rochester
Manson, F. M.	Worthington
March, K. A.	Cambridge
Marcley, W. J.	Minneapolis
Mariette, E. S.	Oak Terrace
Mark, Hilbert	Minneapolis
Marking, G. H.	Minneapolis
Markle, G. B., IV	Rochester
Marks, R. W.	St. Paul
Marshall, C. M.	Crosby
Marshall, T. M.	Rochester
Martens, T. G.	Rochester
Martin, D. A.	Wabasha
Martin, D. L.	St. Paul
Martin, G. R.	Minneapolis
Martin, G. M.	Rochester
Martin, T. P.	Arlington
Martin, W. C.	Duluth
Martin, W. J.	Rochester
Martineau, J. L.	St. Paul
Martinson, C. J.	Wayzata
Martinson, E. J.	Wayzata
Masson, D. M.	Rochester
Masson, J. C.	Rochester
Masson, J. K.	Rochester
Matchan, G. R.	Minneapolis
Matthews, Justus	Minneapolis
Mattill, P. M.	Oak Terrace
Mattison, P. A.	Winona
Mattson, A. D.	St. James
Mattson, H. A. N.	Minneapolis
Maxeiner, S. R.	Minneapolis
Maxeiner, S. R., Jr.	Rochester
Mayne, R. M.	Nopeming
Mayo, C. W.	Rochester
Maytum, C. K.	Rochester
McAdams, J. B.	St. Paul
McBean, J. B.	Rochester
McBurney, R. P.	Rochester
McCaffrey, F. J.	Minneapolis
McCain, D. L.	St. Paul
McCann, D. F.	Bemidji
McCann, Eugene J.	Minneapolis
McCannel, M. A.	Minneapolis
McCarten, F. M.	Stillwater
McCarthy, A. M.	Willmar
McCarthy, Donald	St. Paul
McCarthy, J. J.	St. Paul
McCarthy, W. R.	St. Paul
McCartney, J. S.	Minneapolis
†McCarty, P. D.	Ely
McClanahan, J. H.	White Bear
McClanahan, T. S.	White Bear
McCloud, C. N.	St. Paul
McConahey, W. M., Jr.,	Rochester
McCorkle, J. K.	Rochester
McCormack, L. J.	Rochester
McCormick, D.	Minneapolis
†McCoy, Mary K.	Duluth
‡McCrimmon, H. P.	Minneapolis
†McDaniel, Orianna	Minneapolis
McDonald, A. L.	Duluth
McDonald, J. R.	Rochester
McDonald, O. G.	Duluth
McDowell, J. P.	St. Cloud
McElin, T. W.	Evanston, Ill.
McEnaney, C. T.	Owatonna
McEwan, Alexander	St. Paul
McFarland, A. H.	Minneapolis
McGandy, R. F.	Minneapolis
McGeary, G. E.	Minneapolis
McGeary, M. D.	Brainerd
McGroarty, J. J.	Easton
McGuigan, H. T.	Red Wing
McHaffie, O. L.	Duluth
McInerny, M. W.	Minneapolis
McIntire, H. M.	Waseca
McIntire, S. F.	Rochester
McIntyre, J. A.	Owatonna
McIver, B. A.	Lowry
McKaig, C. B.	Pine Island
McKelvey, J. L.	Minneapolis
McKenna, J. K.	Austin
McKenna, M. J.	Grand Rapids
McKenzie, C. H.	Minneapolis
*McKeon, J. O.	San Angelo, Texas
McKinlay, C. A.	Minneapolis
†*McKinley, J. C.	Minneapolis
McKinney, F. S.	Minneapolis
McLane, W. O.	Thief River Falls
†McLaren, Jennette M.	Minneapolis
McLaughlin, B. H.	Minneapolis
McLaughlin, E. M.	Winona
McLeod, J. L.	Grand Rapids
McLeod, J. J.	Olivia
McMahon, J. M.	New Orleans, La.
McMahon, M. J.	Green Isle
McManus, W. F.	Princeton
McMillan, J. T.	Des Moines, Iowa
McMurtrie, W. B.	Minneapolis
McNaughton, R. A.	Rochester
McNeill, J. I.	Rochester
McNutt, J. R.	Duluth
McPheeters, H. O.	Minneapolis
†McQuarrie, Irvine	Minneapolis
McVay, J. R., Jr.	Rochester
McWhorter, H. E.	Rochester
Mead, C. H.	Duluth
Meade, J. R.	St. Paul
Meadows, E. R.	Birmingham, Ala.
Mears, B. J.	St. Paul
Mears, R. F.	Northfield
Medelman, J. P.	St. Paul
Medlin, C. F.	Truman
Meinert, A. E.	Winona
Melancon, J. F.	St. Paul
Melby, Benedik	Blooming Prairie
†Melby, O. F.	Thief River Falls
Meller, R. L.	Minneapolis
Melzer, G. R.	Lyle
Menold, Wm. F.	St. Paul
Mercil, W. F.	Crookston
Merkert, C. E.	Minneapolis
Merkert, G. L.	Minneapolis
Merner, T. B.	Minneapolis
†Merrick, Charlotte T.	Corydon, Iowa
†Merrill, Elisabeth	Minneapolis
Merrill, J. G.	Littleton, Colo.
Merrill, R. W.	Morris
Merriman, L. L.	Duluth
Merritt, W. A.	Rochester
Metcalf, N. B.	Onamia
Meyer, A. A.	Melrose
Meyer, A. J.	Minneapolis
Meyer, E. L.	Minneapolis
Meyer, F. C.	Kenyon
Meyer, P. F.	Faribault
Meyerding, E. A.	St. Paul
¶Meyerding, H. W.	Rochester
Michael, J. C.	Minneapolis
Michel, H. H.	Minneapolis
Michels, R. P.	Willmar
Michelson, H. E.	Minneapolis
†Mickelsen, Emma F.	Minneapolis
Mickelson, J. C.	Mankato
Michienzi, L. J.	St. Paul
Midthune, A. S.	Lake Park
Milburn, G. B	Rochester
Milhaupt, E. N.	St. Cloud
Miller, A. L.	Minneapolis
Miller, E. W.	Anoka
Miller, E. M.	Rochester
Miller, H. E.	Minneapolis
Miller, Hugo E.	Minneapolis
Miller, J. C.	Minneapolis
Miller, J. R.	Fresno, Calif.
Miller, R. D.	Rochester
Miller, V. I.	Mankato
Miller, W. A.	New York Mills
Miller, W. R.	Red Wing
Miller, W. T.	St. Paul
Miller, Z. R.	St. Paul
Mills, J. L.	Winnebago
Mills, S. D.	Rochester
Milnar, F. J.	St. Paul
Milton, J. S.	Minneapolis
Miners, G. A.	Bemidji
Minge, R. K.	Worthington
Minsky, A. A.	Minneapolis
Minty, E. W.	Duluth
Misbach, W. D.	Fairmont
Mitby, I. L.	Aitkin
Mitchell, B. D.	Minneapolis
Mitchell, E. C.	Minneapolis
Mitchell, M. T.	Minneapolis
Mixer, H. W.	Minneapolis
Moberg, C. W.	Detroit Lakes
Moe, A. E.	Moorhead
Moe, J. H.	Minneapolis
Moe, R. J.	Duluth
Moe, Thomas	Moose Lake
Moehn, J. T.	Minneapolis
Moehring, H. G.	Duluth
Moen, J. K., Jr.	Minneapolis
Moersch, F. P.	Rochester
Moersch, H. J.	Rochester
Moersch, R. U.	Rochester
Moga, J. A.	St. Paul
Molander, H. A.	St. Paul
Mollers, T. P.	Soudan
†Monohan, Eliz. S.	Minneapolis
Monroe, P. B.	Cloquet
Monserud, N. O.	Cloquet
Monson, E. M.	Minneapolis
Monson, L. J.	Canby
Monsour, K. J.	Rochester
Montgomery, Hamilton	Rochester
Moore, I. H.	Minneapolis
Moorhead, Marie	Minneapolis
Moos, D. J.	Minneapolis
Moquin, Marie A.	St. Paul
Morehead, D. E.	Owatonna
†Moren, Edward	Minneapolis
Moren, J. A.	St. Paul
Morgan, E. H.	Rochester
Morgan, H. O.	Amboy
Moriarty, Berenice	St. Paul
Moriarty, Cecile R.	St. Paul
Mork, A. H.	Anoka
Mork, B. O., Jr.	Minneapolis
Mork, F. E.	Anoka
Morlock, C. G.	Rochester
Morris, C. R.	Rochester
Morrison, Charlotte J.	Minneapolis
Morrison, R. W.	Rochester
Morrow, R. P.	Rochester
Morse, M. P.	Le Roy
Morse, R. W.	Minneapolis
Morseman, L. W.	Hibbing
Mortensen, N. G.	Fergus Falls
Morton, Glenn H.	Rochester
Mosby, M. E.	Long Prairie
Moses, R. R.	Kenyon
Mouritsen, G. J.	Fergus Falls
Mueller, Selma C.	Duluth
Muir, W. F.	Browns Valley
Mulholland, W. M.	Minneapolis
Muller, A. E.	North Saint Paul
Muller, R. T.	St. Paul
Mulligan, A. M.	Brainerd
Murphy, E. P.	Minneapolis
*Murphy, I. J.	Minneapolis
Murphy, J. E.	Marshall
Murphy, Jack T.	St. Paul
Murray, R. A.	Hibbing
Musachio, N. F.	Foley
Mussey, Mary E.	Rochester
Mussey, R. D.	Rochester
Mussey, W. C.	Rochester
†Musty, N. J.	Minneapolis
Myers, J. A.	Minneapolis
Myers, T. T.	Rochester
Myers, W. P. L.	Rochester
Myhre, James	Minneapolis
Myre, C. R.	Paynesville

Nachtwey, R. A.	Lansing, Iowa
Naegeli, A. E.	St. Paul
Naegeli, Frank	Fergus Falls

Nagel, H. D.	Waconia
Nash, L. A.	St. Paul
Naslund, A. W.	Minneapolis
Navratil, D. R.	**Montgomery**
Neal, J. M.	Minneapolis
Nealy, D. E.	Adrian
Neary, R. P.	Minneapolis
Neel, H. B.	Albert Lea
Neff, W. S.	Virginia
Nehring, J. P.	Preston
Nelson, A. S.	**Thief River Falls**
Nelson, Bernette G.	**Menagha**
Nelson, Bernice A.	Menahga
Nelson, C. A.	Worthington
Nelson, C. B.	Minneapolis
Nelson, C. E. J.	Albert Lea
Nelson, C. G.	**Harmony**
Nelson, D. E.	Alexandria
Nelson, E. J.	Owatonna
Nelson, E. N.	Minneapolis
Nelson, G. E.	**Fairfax**
†Nelson, H. E.	Crookston
†Nelson, H. S.	Los Angeles, Calif.
Nelson, K. L.	Balaton
†Nelson, L. A.	St. Paul
Nelson, L. S.	Minneapolis
Nelson, M. C.	Minneapolis
Nelson, M. S.	Granite Falls
Nelson, N. H.	Minneapolis
Nelson, N. P.	Minneapolis
Nelson, O. L. N.	Minneapolis
Nelson, P. A.	Rochester
Nelson, R. A.	Fergus Falls
Nelson, R. L.	Duluth
Nelson, W. I.	Minneapolis
Nelson, W. O. B.	Fergus Falls
Nesbitt, Samuel	**Minneapolis**
Nesheim, M. O.	Emmons
Nessa, C. B.	St. Cloud
Nesset, L. B.	**Minneapolis**
Nesset, W. D.	Minneapolis
Neumaier, Arthur	Glencoe
Neumann, C. A.	Winona
New, G. B.	Rochester
Nichols, D. R.	Rochester
Nicholson, J. W.	Rochester
Nicholson, M. A.	Duluth
Nickerson, J. R.	**Heron Lake**
Nickerson, N. D.	Thief River Falls
Nielson, A. M.	Northfield
Nietfeld, A. B.	Warren
Nilson, H. J.	North Mankato
Ninneman, N. N.	Waconia
Nimlos, K. O.	St. Paul
Nimlos, L. O.	St. Paul
Nixon, J. B.	**Crosby**
Noble, J. F.	St. Paul
Noble, J. L.	St. Paul
Nolan, D. E.	Dayton, Ohio
Noonan, W. J.	Minneapolis
Noran, A. S. N.	**Minneapolis**
Noran, H. H.	Minneapolis
Norberg, C. E.	Cloquet
Nord, R. E.	Minneapolis
Nordin, G. T.	Minneapolis
Nordland, Martin	**Minneapolis**
Nordland, Martin, Jr.	Minneapolis
Nordman, W. F.	**Mora**
Norman, J. F.	Crookston
Norris, N. T.	Caledonia
Norval, M. A.	Rochester
†Noth, H. W.	**Minneapolis**
†Novak, E. E.	New Prague
Nowak, D. J.	Rochester
Nuebel, C. J.	**Hudson, Wisconsin**
Nuessle, W. G.	Springfield
Neutzman, A. W.	Faribault
Nutting, R. E.	Duluth
Nydahl, M. J.	Minneapolis
Nye, Katherine A.	St. Paul
Nye, Lillian L.	**St. Paul**
Nygren, W. T.	Braham
Nylander, E. G.	Minneapolis
‡Nystrom, Ruth G.	Malebu Beach, Calif.

†Oberg, C. M.	Minneapolis
O'Brien, J. C.	St. Paul
O'Brien, L. T.	**Breckenridge**
O'Cain, R. K.	Rochester
Ochsnner, C. G.	**Wabasha**
Ockuly, Orville	**St. Paul**
O'Connor, D. C.	Eden Valley
O'Connor, L. J.	St. Paul
Odel, H. M.	Rochester
O'Donnell, D. M.	Ortonville
O'Donnell, J. E.	Minneapolis
Oeljen, S. C. G.	Waseca
Ogden, Warner	St. Paul
Ohage, Justus	St. Paul
O'Hanlon, J. A.	Minneapolis
O'Kane, T. W.	St. Paul
O'Keefe, J. P.	**St. Cloud**
Olds, G. H.	New Richland
O'Leary, J. H.	St. Paul
O'Leary, P. A.	Rochester
Oliver, I. L.	Graceville
Oliver, James	Moorhead
Olmanson, E. G.	St. Peter
Olsen, A. M.	Rochester
Olsen, E. G.	Minneapolis
Olsen, R. L.	St. Paul
Olson, A. C.	Minneapolis
Olson, A. E.	Duluth
Olson, A. J.	**Owatonna**
Olson, A. O.	Duluth
†Olson, B. G.	Minneapolis
Olson, C. A.	St. Paul
Olson, C. J.	Belle Plaine
Olson, D. O. C.	Gaylord
Olson, E. A.	Pine Island
Olson, Frances P.	St. Paul
Olson, G. E.	West Concord
Olson, J. W.	Minneapolis
Olson, L. A.	Ah-Gwah-Ching
†Olson, O. A.	Minneapolis
Olson, S. W.	Chicago, Ill.
O'Neill, J. C.	Duluth
Onsgard, L. K.	Houston
Oppegaard, C. L.	Crookston
Oppegaard, M. O.	Crookston
Oppen, E. G.	Minneapolis
O'Reilley, B. E.	**St. Paul**
Orwoll, H. S.	St. Peter
Osborn, J. E.	**Rochester**
O'Shaughnessy, E. J.	Rochester
Ostergaard, Erling	Evansville
Ostergren, E. W.	St. Paul
Osterholm, R. S.	Rochester
Otto, H. C.	Frazee
Ouellette, A. J.	St. Paul
Owen, C. A. J.	**Rochester**
Owen, H. W.	Rochester
Owens, W. A.	Montevideo
†Owre, Oscar	Minneapolis

Paciotti, V. J.	Hibbing
Page, R. L.	St. Charles
Painter, R. C.	Grand Forks, N.D.
Palen, B. J.	Minneapolis
Palmer, C. F.	Albert Lea
Palmer, H. A.	Blackduck
†Palmer, W. L.	**Albert Lea**
Palmerton, E. S.	Albert Lea
Pankratz, P. J.	Mountain Lake
Papermaster, R.	**Two Harbors**
Papermaster, T. C.	Minneapolis
Parker, C. W.	Wadena
Parker, H. L.	**Rochester**
†Parker, O. W.	Moose Lake
Parker, R. L.	Rochester
Parker, W. E.	**Sebeka**
Parker, W. H.	Chisholm
Parkhill, Edith M.	Rochester
Parkin, T. W.	**Rochester**
Parson, E. I.	**Duluth**
Parson, Lillian B.	**Elbow Lake**
Parson, L. R.	Elbow Lake
†Parsons, J. G.	**Crookston**
Parsons, R. L.	Monterey
Pasek, A. W.	Cloquet
Pasek, E. A.	Carlton
Patch, O. B.	Duluth
Patey, R. T.	Buhl
Patterson, H. D.	**Slayton**
Patterson, W. L.	Fergus Falls
Patton, J. M.	Rochester
Patton, M. M., Jr.	Rochester
Paulson, G. S.	Rochester
Paulson, J. A.	Rochester
Paulson, T. S.	Fergus Falls
Peabody, H. D.	Rochester
‡Pearsall, R. P.	Virginia
Pearson, B. F.	**Shakopee**
Pearson, F. R.	St. Paul
Pearson, L. O.	Warroad
Pearson, M. M.	St. Paul
Pease, Gertrude L.	**Rochester**
Pedersen, A. H.	St. Paul
Pedersen, R. C.	Duluth
Peluso, C. R.	Minneapolis
Pemberton, J. deJ.	Rochester
Pender, J. W.	Rochester
Penhall, F. W.	**Willmar**
Penk, E. L.	Springfield
Penn, G. E.	Mankato
Pennie, D. F.	Duluth
Peppard, T. A.	Minneapolis
Perlman, E. C.	Minneapolis
Perry, Harold	Rochester
Person, J. P.	**Albert Lea**
Pertl, A. L.	Canby
Peters, G. A.	**Rochester**
Peterson, D. H.	Northfield
Petersen, G. L.	Minneapolis
†Petersen, J. R.	**Minneapolis**
Petersen, M. C.	Rochester
Petersen, P. C.	Mora
Petersen, R. T.	**St. Cloud**
Peterson, C. A.	Minneapolis
Peterson, D. B.	St. Paul
Peterson, D. H.	**St. Paul**
Peterson, E. N.	Virginia
Peterson, H. O.	**St. Paul**
Peterson, H. W.	Minneapolis
Peterson, J. L. E.	St. Paul
Peterson, J. H.	Duluth
Peterson, Kenneth	Marshall
Peterson, K. H.	Hutchinson
Peterson, L. J.	**Minneapolis**
Peterson, N. P.	Minneapolis
Peterson, O. L.	Cokato
Peterson, O. H.	Minneapolis
Peterson, P. E.	Minneapolis
Peterson, R. A.	Vesta
Peterson, S. C.	Austin
Peterson, W. C.	Minneapolis
Peterson, W. E.	**Willmar**
Peterson, W. H.	Owatonna
Peterson, W. Henry	Minneapolis
Petit, J. V.	Minneapolis
Petit, L. J.	Minneapolis
Petraborg, H. T.	**Aitkin**
Pewters, J. T.	Minneapolis
Peyton, W. T.	Minneapolis
Pfuetze, K. H.	**Cannon Falls**
Pfunder, M. C.	Minneapolis
Phares, Otto C.	St. Cloud
Phares, W. S.	Rochester
Phelps, K. A.	Minneapolis
Pierce, C. H.	Wadena
Pierce, R. B.	Wadena
Pierson, R. F.	Slayton
¶Piper, M. C.	Rochester
Piper, W. A.	Mountain Lake
Plasha, M. K.	Glenwood
Plass, H. F. R.	**Minneapolis**
Platou, E. S.	Minneapolis
Pleissner, K. W.	**St. Louis Park**
Plimpton, N. C., Jr.	Minneapolis
Plondke, F. J.	St. Paul
Plotke, H. L.	St. Paul
Pogue, R. E.	**Watertown**
Pohl, D. E.	Crookston
Pohl, J. F. M.	Minneapolis
Poirier, J. A.	Forest Lake
Pollard, D. W.	Minneapolis
Polley, H. F.	Rochester
Pollock, D. K.	Minneapolis
Polski, P. G.	**So. St. Paul**
Polzak, J. A.	Minneapolis
Ponterio, J. E.	Shakopee
Pool, T. L.	Rochester
Poore, T. N.	**Rochester**
*Popp, W. C.	Rochester
Poppe, F. H.	Minneapolis
Porter, G. E.	**Rochester**
Porter, O. M.	Willmar
Post, D. B.	Rochester
Potek, D.	International Falls
Potter, R. B.	Minneapolis
Potthoff, C. J.	Washington, D. C.
Power, J. E.	Duluth
Powers, F. H.	Rochester
Prangen, A. D.	Rochester
†Pratt, Fred J., Sr.	**Minneapolis**
Pratt, F. J., Jr.	**Minneapolis**
Pratt, J. H., Jr.	Rochester
Preine, I. A.	Minneapolis
Preisinger, J. W.	Renville
Prendergast, H. J.	St. Paul
Preston, P. J.	Minneapolis
Prickman, L. E.	Rochester
Pridgen, J. E.	**Rochester**
Priest, R. E.	Minneapolis
Priestly, J. T.	Rochester
†Prim, J. A.	**Minneapolis**
Prins, L. R.	Albert Lea
Proeschel, R. K.	Willmar
Proffitt, W. E.	Minneapolis
Proshek, C. E.	**Minneapolis**
Prough, W. A.	Ontario, Calif.
Pruitt, R. D.	**Rochester**
Pugh, D. G.	**Rochester**
Pumula, E. E.	Warren
Purves, G. H.	Hendricks
Puumala, R. H.	Cloquet
Pyle, Marjorie M.	Cannon Falls

Quanstrom, V. E.	**Brainerd**
Quattlebaum, Frank	**St. Paul**
Quello, R. O. B.	Minneapolis
Quigley, W. P.	Thief River Falls
†Quist, H. W.	Minneapolis
Quist, H. W., Jr.	**Minneapolis**

Raadquist, C. S.	Hibbing
Raattama, J. W.	Keewatin
Radabaugh, R. C.	Hastings
Rae, J. W., Jr.	Ann Arbor, Mich.
Raetz, S. J.	Maple Lake
Ragsdale, W. E., Jr.	Rochester
Raihala, John	Virginia
Raiter, R. F.	Cloquet
Rall, J. E.	New York, N. Y.
Ralph, J. R.	**St. Paul**
Ralston, D. E.	**Rochester**
Ramsey, W. R.	**St. Paul**
Randall, A. M.	Ashby
Randall, L. M.	Rochester
Randall, R. V.	Rochester
Randall, W. H.	Rochester
Ransom, H. R.	**Osseo**
Ransom, M. L.	Hancock
Rasmussen, R. C.	St. Paul
Rasmussen, W. C.	Rochester
Ratcliffe, J. J.	**Aitkin**
Ratke, H. V.	Rochester
Ravits, H. G.	St. Paul
Rea, C. E.	St. Paul
Reader, D. R.	**Minneapolis**
Rechlitz, E. T.	**Albert Lea**
Reed, Paul	**Virginia**
Reeve, E. T.	Elbow Lake
Reff, A. R.	Crookston
Regan, J. J.	**Minneapolis**
Regnier, E. A.	Minneapolis
Reid, J. W.	**St. Paul**
Reid, L. M.	Excelsior
Reif, H. A.	Minneapolis
Reif, H. J.	**St. Cloud**
Reiley, R. E.	**Minneapolis**
Reineke, G. F.	**New Ulm**
Reinhardt, J. H.	Red Lake Falls
Reiter, R. A.	Rochester
Reitmann, J. H.	**Hastings**
ReMine, W. H., Jr.	Rochester
Remsberg, R. R.	**Tracy**
Replogle, W. H.	**Los Angeles, Calif.**
Resch, J. A.	Minneapolis
Retter, Richard	Rochester
Reynolds, J. L.	**Rochester**
Rice, C. O.	Minneapolis
Rice, Frank B.	Minneapolis
Rice, H. G.	Moorhead
Rice, R. G.	Minneapolis
Richards, E. T. F.	St. Paul
Richards, W. B.	St. Cloud
Richardson, E. J., Jr.	St. Paul
Richardson, H. E.	St. Paul
Richardson, R. J.	St. Paul
Richdorf, L. F.	Minneapolis
Rick, F. F. W.	St. Paul
Riddell, R. V.	**Rochester**
Ridgway, A. M.	Annandale
Ridley, R. W.	**Rochester**
Rieke, W. W.	Wayzata
Rigler, L. G.	Minneapolis
Ringle, O. F.	Walker
Rinkey, Eugene	**St. Paul**
Riordan, Elsie M.	Minneapolis
Ripley, H. R.	Rochester
Ripple, R. J.	New London
Risch, R. E.	Minneapolis
Risser, A. F.	Stewartville
Ritchie, W. P.	St. Paul
Ritt, A. E.	St. Paul
Rizer, D. K.	Minneapolis
Rizer, R. I.	Minneapolis
Robb, E. F.	Minneapolis
Robbins, C. P.	**Winona**
Robbins, O. F.	Minneapolis
Roberts, L. J.	Minneapolis
Roberts, O. W.	Owatonna
Roberts, S. W.	Minneapolis
Roberts, W. B.	Minneapolis
Robertson, J. B.	**Minneapolis**
Robertson, P. A.	Austin
Robilliard, C. M.	Faribault
Robinett, R. W.	**Worthington**
Robinson, A. W.	Rochester
Robinson, J. M.	Goshen, N. Y.
Rockwell, C. V.	**Minneapolis**
Rockwood, Philo H.	**Fergus Falls**
Rodda, F. C.	Minneapolis
Rodgers, C. L.	Minneapolis
Rodgers, R. S.	**Minneapolis**
Rodwell, T. F.	Mahnomen
Roehlke, A. B.	Elk River
Roemer, H. J.	Winona
Rogers, C. W.	**Winona**
Rogers, S. F.	**St. Paul**
Rogne, W. G.	Spring Grove
Roholt, C. L.	Waverly
Roholt, H. B.	Fosston
Rohrer, C. A.	Waterville
Rokala, H. E.	Virginia
Rolig, D. H.	St. Paul
Rollins, T. G.	Elmore
Rome, H. P.	Rochester
†Rood, D. C.	**Duluth**
Rooke, E. D.	Rochester
Rose, J. T.	Lakefield
Rosendahl, F. G.	Minneapolis
Rosenfield, A. B.	**Minneapolis**
Rosenow, J. H.	Minneapolis
Rosenthal, F. H.	**Austin**
Rosenthal, Robert	St. Paul
Rosenwald, R. M.	Minneapolis
Rosin, J. D.	Rochester
Ross, A. J.	Minneapolis
Rossberg, R. A.	**Morris**
Rossen, R. X.	Hastings
Roth, F. D.	Lewiston
Roth, G. C.	St. Paul
Rothschild, H. J.	St. Paul
Rotnem, O. M.	Harmony
Roust, H. A.	Montevideo
Routley, E. F.	**Rochester**
Rovelstad, R. A.	Rochester
Rowe, C. J., Jr.	St. Paul
Rowe, O. W.	Duluth
Rowe, W. H.	Fairmont
Rowles, E. K.	Coleraine
Roy, P. C.	St. Paul
Rozycki, A.	Pine River
Rucker, C. W.	Rochester
Rucker, W. H.	Minneapolis
Rud, N. E.	**Minneapolis**
Rudell, G. L.	Minneapolis
Rudie, C. N.	St. Peter
Rudie, P. S.	Duluth
Ruff, C. C.	**Rochester**
Ruggles, G. M.	Forest Lake
†Ruhberg, G. N.	Tarzona, Calif.
Rumpf, C. W.	Faribault
†*Rumpf, W. H.	Faribault
Runquist, J. M.	**Duluth**
Rushton, J. G.	Rochester
Russ, H. H.	Blue Earth
Russeth, A. N.	**Minneapolis**
Rusten, E. M.	Minneapolis
Rutherford, W. C.	**Nisswa**
Rutledge, L. H.	Detroit Lakes
Ruzicka, F. F.	Minneapolis
Ryan, J. D.	**St. Paul**
Ryan, J. J.	St. Paul
Ryan, J. M.	St. Paul
Ryan, M. E.	St. Paul
Ryan, W. J.	Duluth
Rydburg, W. C.	Minneapolis
Rydell, J. R.	**Rochester**
Ryding, V. T.	Howard Lake
Rygh, H. N.	Atwater
Rynda, E. R.	New Prague
Rynearson, E. H.	Rochester
Sach-Rowitz, Alvan	**Moose Lake**
Sadler W. P., Jr.	Minneapolis
Saffert, C. A.	New Ulm
Sahr, W. G. C.	Hutchinson
St. Cyr, H. M.	Minneapolis
St. Cyr, K. J.	**Robbinsdale**
Salassa, R. M.	**Rochester**
Saliterman, B. I.	Minneapolis
Salk, Richard J.	Albany
Salter, R. A.	Virginia
Samuelson, L. G.	Mankato
Samuelson, Samuel	**Minneapolis**
Sandell, S. T.	Nopeming
Sanderson, A. G.	**Deerwood**
Sanderson, D. J.	Princeton
†Sanderson, E. T.	**Alexandria**
Sandt, K. E.	Minneapolis
Sandven, N. O.	Paynesville
¶Sanford, A. H.	Rochester
Sanford, R. A.	Minneapolis
Sarff, O. E.	**Duluth**
Sargent, E. C.	**Austin**
Sarnecki, M. M.	**St. Paul**
Satersmoen, Theodore	Pelican Rapids
†*Sather, Allen	Fosston
Sather, Edgar L.	Fosston
Sather, E. R.	Alexandria
Sather, G. A.	Fosston
Sather, R. N.	Fosston
Sather, R. O.	Crookston
Satterlee, H. W.	Lewiston
Satterlund, V. L.	St. Paul
Sauer, W. G.	Rochester
Savage, F. J.	St. Paul
Sawatzky, W. A.	Minneapolis
Sax, M. H.	Duluth
Sax, S. G.	Duluth
Saxman, G. E.	**Georgetown**
Saxon, R. F.	Rochester
Saylor, H. L.	Huron, S. D.
Sayre, G. P.	**Rochester**
Sborov, A. M.	Minneapolis
Scanlon, P. W.	Rochester
Schaaf, F. H.	Minneapolis
†Schaar, Frances E.	Minneapolis
Schade, F. L.	Worthington
Schaefer, J. F.	Owatonna
Schaefer, Samuel	**Winona**
Schaefer, W. G.	Minneapolis
Schamber, W. F.	Parkers Prairie
Schatz, F. J.	St. Cloud
Scheifley, C. H.	**Rochester**
†Scheldrup, N. H.	Minneapolis
Scherbel, A. L.	Rochester
Scherer, L. R.	Minneapolis
Scherling, S. S.	**Minneapolis**
Schiele, B. C.	Minneapolis
Schimelpfenig, G. T.	Chaska
Schirber, M. J.	**Grand Rapids**
Schlesselman, G. H.	Minneapolis
Schmid, J. F.	Duluth
Schmidt, G. F.	Minneapolis
Schmidt, H. R.	**Winona**
Schmidt, H. W.	Rochester
Schmidt, J. R.	**Mountain Lake**
†Schmidt, Paul	**Monroe, Ore.**
Schmidt, P. G., Jr.	Granite Falls
Schmidt, R. F.	**Alden**
Schmidtke, R. L.	St. Paul
†Schmitt, S. C.	San Diego, Calif.
Schmitz, A. A.	Mankato
Schmitz, E. J.	Holdingford
Schmitz, G. P.	Little Falls
†Schneider, J. P.	Minneapolis
Schneider, L. E.	Duluth
Schneider, P. J.	Adams
†Schneider, R. A.	Minneapolis
†*Schneidman, N. R.	Minneapolis
Schnugg, F. J.	Brainerd
Schoch, R. B. J.	St. Paul
Scholpp, O. W.	Hutchinson
Scholz, D. A.	Rochester
Schons, Edward	St. Paul
†Schottler, G. J.	Dexter
Schottler, M. E.	Minneapolis
Schroder, C. H.	Duluth
Schroeckenstein, H. F.	St. Paul
Schroeder, A. J.	Minneapolis
Schroeppel, J. E.	**Winthrop**
Schulberg, V. A.	Arlington
†Schuldt, F. C.	**St. Paul**
‡Schultz, J. A.	Albert Lea
Schultz, J. H.	Minneapolis
Schultz, P. J.	Minneapolis
Schulze, A. G.	St. Paul
Schulze, W. M.	**Minneapolis**
†*Schussler, O. F.	Minneapolis
Schutz, E. S.	Mountain Lake
Schwartz, V. J.	Minneapolis
Schweiger, T. R.	Hibbing
Schweppe, J. S.	**Rochester**
†Schwyzer, Gustav	Minneapolis
Schwyzer, H. C.	St. Paul
†*Scofield, C. L.	Benson
Scott, E. E.	St. Paul
†Scott, F. H.	Minneapolis
Scott, H. G.	Minneapolis
Scribner, B. H.	Rochester
Scudamore, H. H.	Rochester
Seaberg, J. A.	**Minneapolis**
Seagle, I. B.	Rochester
Seale, Ruth A.	Rochester
†Seashore, Gilbert	**Minneapolis**
Seashore, R. T.	**Duluth**
Seebach, L. M.	Rochester
Seery, T. M.	**Austin**
Segal, M. A.	Minneapolis
Seham, Max	Minneapolis
Seifert, M. H.	Excelsior
Seifert, O. J.	New Ulm
Seitz, S. B.	Richardton, N. Dak.
Sekhon, M. S.	**St. Paul**
Seldon, T. H.	Rochester
Selieskog, S. R.	Minneapolis
Sellers, G. K.	**Dassel**
Selmo, J. D.	Norwood
Semsch, R. D.	**Minneapolis**
†Senkler, G. E.	St. Paul
Senn, E. W.	Owatonna
Sether, A. F.	**Ruthton**
Setzer, H. J.	St. Paul
Seybold, W. D.	Rochester
Shandorf, J. F.	Minneapolis
Shands, W. C.	**Rochester**
Shannon, W. R.	St. Paul
Shaperman, Eva P.	**Minneapolis**
Shapiro, M. J.	Minneapolis
Shapior, Sidney	Minneapolis
Sharp, D. V.	Minneapolis
Sharp, M. C.	Virginia
Shaw, H. A.	St. Paul
*†Shaw, A. W.	Virginia
Sheedy, C. L.	Austin
†Shellman, J. L.	Pacific Palisades, Calif.
Sheppard, C. G.	**Hutchinson**
Sher, D. A.	Virginia

Sher, Lewis..............Minneapolis
†Sherman, A. G. ....Minneapolis
Sherman, C. H...............Bayport
Sherman, C. L...............Luverne
Sherman, H. T............Cambridge
Sherman, R. V............Red Wing
Sherwood, G. E..............Kimball
Shick, R. M...............Rochester
Shimonek, S. W.............St. Paul
Shonyo, E. S. ....Santa Monica, Calif.
Short, Jacob................St. Paul
†Shrader, E. E..............Watertown
Shragg, Harry................Elmore
Shronts, J. F............Minneapolis
Sickels, E. W...............St. Paul
Siegel, Clarence............St. Paul
Siegel, J. S................Virginia
Siegmann, W. C.........Minneapolis
Siemon, Glenn..............Rochester
Silver, J. D............Minneapolis
Simison, Carl ....Barnesville
Simons, B. H................Chaska
Simons, E. J..............Swanville
†Simons, J. H............Minneapolis
Simons, L. T...............St. Paul
Simonson, D. B..........Minneapolis
Simonton, K. MacL. ......Rochester
Simpson, E. DeW. ......Minneapolis
Sinamark, Andrew..........Hibbing
Singer, B. J...............St. Paul
Sinykin, M. B...........Minneapolis
Siperstein, D. M. ....Minneapolis
Sisk, H. E.................St. Cloud
Sisler, C. E...........Grand Rapids
Sisterman, T. J..........Minneapolis
†Sivertsen, A. ....Mound
†Sivertsen, Ivar...........Minneapolis
Sjoding, J. D................Mankato
Sjostrom, L. E..............St. Peter
Skaug, H. M...............Chatfield
Skillern, P. G., Jr........Rochester
†Skinner, H. O...............St. Paul
Skjold, A. C............Minneapolis
Skogerboe, R. B.............Karlstad
Skroch, E. E. ....Rochester
Slater, S. A...........Worthington
Sloan, W. P.................Rochester
Slocumb, C. H............Rochester
Smisek, E. A................St. Paul
Smisek, F. M. E.........Minneapolis
Smith, Adam M..........Minneapolis
Smith, Archie M.........Minneapolis
*Smith, B. A...................Crosby
Smith, Baxter A., Jr. ....Minneapolis
Smith, C. M..................Duluth
Smith, D. V.............Blue Earth
¶Smith, F. L. ....Rochester
Smith, F. R. ....Rochester
Smith, G. G..............Minneapolis
Smith, G. R..............Hutchinson
Smith, H. L...............Rochester
Smith, H. R.............Minneapolis
Smith, L. G.............Montevideo
Smith, L. A...............Rochester
Smith, Loyd A..................Tyler
†Smith, M. I. ....Minneapolis
†Smith, M. W..............Red Wing
Smith, N. D...............Rochester
Smith, N. M.... ....Minneapolis
Smith, N. R............Minneapolis
Smith, O. O., Jr. ..Independence, Va.
Smith, P. M.............Lake Crystal
Smith, P. L.................Rochester
Smith, R. C..............Holdingsford
Smith, T. S.............Minneapolis
Smith, V. D. E..............St. Paul
Smith, W. R...........Grand Marais
Smyth, J. J............Lester Prairie
Snyder, C. D. ....Kiester
Snyder, G. W...............St. Paul
Snyder, O. E.....................Ely
Soderlind, R. T.........Minneapolis
Sogge, L. L.................Windom
Sohlberg, O. I..............St. Paul
†Sohmer, A. E...............Mankato
Solhaug, S. B...........Minneapolis
Solsem, F. N. S.................Spicer
Solvason, H. M..........Minneapolis
Sommers, Ben...............St. Paul
Sonnesyn, N. N...........Le Sueur
Sorem, M. B................St. Paul
Sorum, F. T..................Jasper
Soucheray, P. H.............St. Paul
Soule, E. H.................Rochester
Souster, B. B...............St. Paul
Spang, A. J...................Duluth
Spang, J. S...................Duluth
Spano, J. P.............Minneapolis
Spaulding, C. A.............Rochester
Spear, I. M................Rochester
Spear, R. C................Rochester
Spence, B. J................Rochester
Spencer, B. J...............Rochester
Spencer, J. R...............Rochester

*Spicer, F. W..................Duluth
Spink, W. W............Minneapolis
Spock, B. M................Rochester
Sponsel, K. H.............Rochester
Sprafka, J. L................St. Paul
Sprafka, J. M...............St. Paul
Sprague, R. G.............Rochester
†Spratt, C. N............Minneapolis
Spray, Paul................Rochester
Spurzem, R. J.................Anoka
Stahr, A. C..................Hopkins
Stam, John ....Worthington
Stanford, C. E..........Minneapolis
Stangl, P. E...............St. Cloud
Stanley, C. R...........Worthington
Stapley, L. A., Jr...........Rochester
Starekow, M. D. ..Thief River Falls
Stark, D. B. ....Rochester
Starks, W. O...............Rochester
State, David ....Minneapolis
Stauffer, M. H............Rochester
Steffens, L. A.............Red Wing
Stein, K. E.................Lakeville
Stein, R. J......................Pierz
Steinberg, C. L..............St. Paul
Steiner, I. W.................Winona
Steiner, L. E.............Albert Lea
Stelter, L. A............Minneapolis
Stemsrud, H. L...........Alexandria
Stennes, J. L. ....Minneapolis
Stenstrom, Annette, E.....Minneapolis
Sterner, D. C................St. Paul
Sterner, E. G...............St. Paul
Sterner, E. R...............St. Paul
Sterner, J. J.................St. Paul
Sterner, O. W...............St. Paul
Stevenson, B. M. ....Fulda
Stevenson, F. W............Faribault
Stewart, Alexander ....St. Paul
Stewart, D. E..............Crookston
Steward, R. I. ....Minneapolis
Stickney, J. M.............Rochester
‡Stiegler, F. S. ..Nuremberg, Germany
Stillwell, W. C...............Mankato
Stillwell, G. G.............Rochester
Stinson, J. C., Jr............Rochester
Stoeckmann, A. E............St. Peter
Stoesser, A. V... ....Minneapolis
Stolpestad, A. H............St. Paul
Stolpestad, H. L. ....St. Paul
†Stomel, Joseph....Los Angeles, Calif.
Stone, N. F..................Gonvick
Stone, S. P..............Minneapolis
Storrs, R. P................Rochester
Storsteen, K. A............Rochester
Stowe, H. R................Rochester
Stoy, R. A................Little Falls
†Strachauer, A. C.........Minneapolis
Strandjord, N. M............Virginia
Stransky, T. W............Owatonna
Strate, G. E.................St. Paul
Strathern, C. S.............St. Peter
†Strathern, F. P.............St. Peter
‡Strathern, M. L................Gilbert
Stratte, A. K...............Pine City
Stratte, H. C......... ......Windom
Straus, M. L................St. Paul
Strauss, E. C. ....Duluth
Street, Bernard ....Northfield
Strem, E. L. ....St. Paul
Strewler, G. J.................Duluth
Strickler, J. H...........Minneapolis
Strobel, W. G.................Duluth
Stroebel, C. F., Jr. ....Rochester
Strom, G. W. ....Minneapolis
Stromgren, D. T. ....Minneapolis
Stromme, W. B. ......Minneapolis
Stuart, A. B...................Cloquet
Studer, D. J................Faribault
Stuhr, J. W................Stillwater
Sturley, R. F. ....St. Paul
*Sturre, J. R.............Minneapolis
†Subby, Walter...........Minneapolis
Sukov, Marvin ....Minneapolis
Sullivan, R. M..........Minneapolis
†Sutherland, C. G..........Rochester
Sutherland, H. N.................Ely
Sutherland, W. H.............Benson
Sutton, H. R...............Hoffman
Svien, H. J................Rochester
Swanson, J. A...............St. Paul
Swanson, L. J.........South St. Paul
Swanson, R. E..........Minneapolis
Swanson, R. R...........Minneapolis
†Swanson, V. F.....Santa Monica, Calif.
Swedberg, W. A...............Duluth
Swedenburg, P. A. ......Glenwood
Sweetser, H. B., Jr.......Minneapolis
†Sweetser, H. B., Sr.......Minneapolis
Sweetser, T. H..........Minneapolis
†Sweitzer, S. E...........Minneapolis
†Swendseen, C. G.........Minneapolis
Swendson, J. J..............St. Paul
Swensen, R. G.........North Branch

Swenson, A. O................Duluth
Swenson, O. J................Waseca
*Swezey, B. F.................Buffalo

Takaro, T...................Rochester
Tangen, G. M............Minneapolis
Tanquist, E. J............Alexandria
Taylor, A. B...............Rochester
Taylor, B. E..............Rochester
†Taylor, C. W. ....Duluth
Taylor, J. H............Minneapolis
Taylor, R. W., Jr..........Rochester
Teich, K. W. ....Duluth
Teisberg, C. B..............St. Paul
Teisberg, J. E. ....St. Paul
Teitgen, R. E...............Rochester
*Telford, V. J...............Litchfield
Tenner, R. J............Minneapolis
Terrell, B. J..............Nopeming
Tesch, G. H..............Elk River
Tetlie, J. P....................Duluth
Thabes, J. A., Jr............Brainerd
†Thabes, J. A., Sr............Brainerd
Thayer, E. A. ....Fairmont
Thelen, E. P................Rochester
Thielen, R. D. ....St. Michael
Thiem, C. E...................St. Paul
Thomas, G. E............Minneapolis
†Thomas, G. H. ....Minneapolis
Thompson, Arthur ....Cokato
Thompson, C. O...........Hendricks
Thompson, F. A.............St. Paul
Thompson, G. J.............Rochester
Thompson, H. B.............St. Cloud
Thompson, W. H.........Minneapolis
Thomson, J. M. ....Minneapolis
Thorsen, D. S...............St. Paul
Thoreson, M. C. Bernice..So. St. Paul
Thorson, S. V...........Minneapolis
Thysell, D. M...........Minneapolis
Thysell, F. A............. Moorhead
Thysell, V. D.................Hawley
Tibbetts, M. H...............Duluth
Tifft, C. R..................St. Paul
Tillisch, J. H..............Rochester
†Tingdale, A. C. ....Minneapolis
Tingdale, Carlyle............Hibbing
Tinkham, R. G...........Minneapolis
Titrud, L. A. ....Minneapolis
Tobin, J. D...............Minneapolis
Tobin, J. R., Jr............Rochester
Todd, R. L............Minneapolis
Tondreau, R. L.............Rochester
†Torgerson, W. B. ....Oklee
Tosseland, N. E...............Duluth
Trach, B. B............Minneapolis
Tracht, R. R................St. Paul
Traeger, C. A..............Faribault
Travis, J. S. ....St. Paul
Traxler, J. F.............Henderson
Tregilgas, H. R..........So. St. Paul
Trommald, G. B. K............Anoka
Troost, H. B................Mankato
Trow, J. E.............Minneapolis
Trow, W. H............Minneapolis
Troxil, Elizabeth............St. Paul
Trueman, H. S...........Minneapolis
Truesdale, C. W..............Glencoe
Trutna, T. J............Silver Lake
Tudor, R. B............Minneapolis
†Tunstead, H. J...........Minneapolis
Tuohy, E. L...................Duluth
Turbak, C. E...................Canby
†Turnacliff, D. D.............St. Paul
Turnbull, T................Rochester
†Tweedy, G. J. ....Winona
Tweedy, J. A.................Winona
Tweedy, R. B.................Winona
Twiggs, Leo F................Austin
†Twomey, J. E............Minneapolis
Tyler, S. H. ....Raymond

Ude, W. H.............Minneapolis
Uhley, C. G..............Crookston
Uihlein, Alfred............Rochester
†Ulrich, H. L............Minneapolis
Ulvestad, H. S. ....Minneapolis
Underdahl, L. O...........Rochester
Undine, C. A...........Minneapolis
Upson, M., Jr...............Rochester
Urberg, S. E. ....Duluth
Uzmann, J. W..............Rochester

Vadheim, A. L...................Tyler
Vadheim, L. A..............Rochester
Valentine, W. H...............Tracy

Van Cleve, H. P., Jr.	Austin
Vandersluis, C. W.	Bemidji
Van Bergen, F. H.	Minneapolis
Van Herik, Martin	**Rochester**
Van Meier, Henry	Stillwater
Van Patter, Ward	Rochester
Van Ryzin, D. J.	**Duluth**
Van Valkenberg, J. D.	Floodwood
Varco, R. L.	St. Paul
Vaughan, V. M.	Truman
Vaughn, C. Gordon	Plainview
Vaughn, L. D.	Rochester
Veirs, D. M.	St. Paul
Veirs Ruby J. S.	St. Paul
Venables, A. E.	St. Paul
Veranth, L. A.	**St. Cloud**
Verby, J. E., Jr.	Litchfield
Vezina, J. C.	Mapleton
Vik, A. E.	Minneapolis
Vik, Melvin	Onamia
Virnig, M. P.	Wells
Virnig, R. P.	**Wells**
Vogel, H. A. L.	New Ulm
Vollmer, F. J.	**Winona**
*Von der Weyer, W. H.	St. Paul
Von Drasek, J.	**Mankato**
Vrtiska, F. L.	**St. Cloud**

Waas, C. W.	St. Paul
Wadd, C. T.	Janesville
Wagener, H. P.	Rochester
Wagenknecht, T. W., Jr.	Appleton
Wagner, N. W.	Graceville
Wahlquist, H. F.	**Minneapolis**
Wakefield, E. G.	Rochester
†**Wakim, Khalil G.**	**Rochester**
Walder, H. J.	**Duluth**
Waldron, C. W.	Minneapolis
Walfred, K. A.	St. Cloud
Walker, A. E.	**Duluth**
Walker, A. E.	St. Paul
Walker, S. A.	**Minneapolis**
Wall, C. R.	**Minneapolis**
Wallace, M. O.	Duluth
Waller, J. D.	**Pine City**
Walsh, E. F.	St. Paul
Walsh, F. M.	**Minneapolis**
Walsh, M. N.	Rochester
Walsh, W. T.	**Minneapolis**
Walston, J. H.	Clarkfield
Walter, C. W.	St. Paul
Walter, F. H.	**International Falls**
Walters, Waltman	Rochester
Wandke, O. E.	**Fairmont**
Wang, J. C.	**Minneapolis**
Wangensteen, O. H.	**Minneapolis**
Ward, L. E.	Rochester
Ward, P. A.	Minneapolis
Ward, P. D.	**St. Paul**
Warner, J. J.	Perham
Warren, C. A.	St. Paul
Wasson, L. F.	Alexandria
Watkins, C. H.	Rochester
Watkins, J. A.	Windom
Watson, A. M.	Royalton
Watson, C. G.	Minneapolis
Watson, C. J.	Minneapolis
*Watson, J. D.	Minneapolis
Watson, John B.	Rochester
Watson, J. R.	**Rochester**
Watson, P. T.	**Minneapolis**
Watson, P. Theo.	St. Paul
Watson, R. E.	**Minneapolis**
Watson, R. M.	Thief River Falls
Watson, S. W.	Royalton
Watson, W. H. A.	St. Paul
Watson, W. J.	**Newport**
Watz, C. E.	St. Paul
Waugh, J. M.	Rochester
Weaver, M. M.	Vancouver, B. C., Can.
Weaver, P. H.	Faribault
Webb, E. A.	Minneapolis
Webb, J. H.	**Rochester**
Webb, R. C.	Minneapolis
Webber, F. L.	St. Paul
Webber, R. J.	Minneapolis
Weber, H. M.	Rochester
Wedes, Deno J.	Belgrade
Weed, L. A.	Rochester
Weir, J. F.	Rochester
Weis, B. A.	St. Paul
Weisberg, Maurice	St. Paul
Weisberg, R. J.	**Minneapolis**
Wellman, T. G.	Clinton, Iowa
Wellman, W. E.	**Rochester**
Wellner, T. O.	**Rochester**
Wells, A. H.	Duluth
Wells, W. B.	Jackson
Wendland, J. P.	**Minneapolis**
Wenner, W. T.	St. Cloud
Wente, H. A.	Rochester
Wentworth, A. J.	**Mankato**
Wenzel, G. P.	St. Paul
Wenzel, R. E.	**Blue Earth**
Werner, George	**Minneapolis**
†*Werner, O. S.	St. Paul
Wesolowski, S. P.	Minneapolis
†**West, Catherine C.**	**Minneapolis**
West, Elmer J.	Fort Thomas, Ky.
Westby, Magnus	Madison
*Westby, Nels	Madison
†**Westerman, A. E.**	**Montgomery**
Westerman, F. C.	Montgomery
‡Westphal, K. F.	Portland, Oregon
Westrup, J. E.	Lanesboro
†Wethall, A. G.	Minneapolis
Wetherby, Macnider	Minneapolis
Wetzel, E. V.	St. Cloud
Weum, T. W.	Minneapolis
Weyand, R. D.	Rochester
Wheeler, D. W.	Duluth
†**Wheeler, M. W.**	**Lake Elmo**
†**Whitacre, J. C.**	**St. Paul**
White, A. A.	Minneapolis
White, S. M.	**Minneapolis**
White, W. D.	Minneapolis
Whitesell, F. B., Jr.	**Rochester**
Whitesell, L. A.	Minneapolis
Whitney, R. A.	Cambridge
Whitson, S. A.	Albert Lea
Whittemore, D. D.	Bemidji
Widen, W. F.	Minneapolis
Wikoff, H. M.	Bemidji
†Wilcox, A. E.	Minneapolis
Wilcox, G. C.	**St. Peter**
†**Wilder, K. W.**	**Minneapolis**
Wilder, R. L.	Minneapolis
Wilder, R. M.	Rochester
Wilder, R. M., Jr.	**Minneapolis**
Wilhelm, W. F.	Rochester
Wilken, P. A.	Minneapolis
†Wilkinson, Stella L.	Faribault
Wilkowske, R. J.	Owatonna
Will, C. B.	Bertha
Will, W. W.	Bertha
†**Willcutt, C. E.**	**Phoenix, Ariz.**
Williams, A. B.	St. Paul
Williams, B. F. P.	**Duluth**
Williams, C. A.	Pipestone
Williams, C. K.	St. Paul
Williams, H. L., Jr.	Rochester
Williams, H. O.	Lake Crystal
Williams, J. A.	**St. Paul**
Williams, L. A.	Minneapolis
Williams, M. M.	Ah-Gwah-Ching
Williams, M. R.	Cannon Falls
†**Williams, R. V.**	**Rushford**
†Williams, Robert	Carthage, Ill.
Williamson, H. A.	Lake Heron
Willius, F. A.	Rochester
Wilmot, C. A.	Litchfield
Wilmot, H. E.	Litchfield
Wilson, C. E.	Blue Earth
Wilson, F. C.	Austin
Wilson, J. A.	St. Paul
Wilson, J. V.	St. Paul
Wilson, R. B.	**Rochester**
Wilson, R. H.	Winona
Wilson, V. O.	Minneapolis
Wilson, W. E.	Northfield
†**Wilson, W. F.**	**Lake City**
‡Wiltrout, I. G.	Oslo
Winburn, J. R.	Rochester
Winchester, E. C.	**Rochester**
Winchester, W. W.	**Rochester**
Wingquist, C. G.	Crosby
Winnick, J. B.	St. Paul
Winter, J. A.	**Duluth**
Winther, Nora M. C.	Minneapolis
Wipperman, F. F.	Minneapolis
Wisness, O. A.	**Slayton**
Witham, C. A.	Minneapolis
Wittich, F. W.	Minneapolis
Wittrock, L. H.	**Watkins**
Wohlrabe, A. A.	Minneapolis
Wohlrabe, C. F.	No. Mankato
Wohlrabe, E. J.	Springfield
Wold, K. C.	St. Paul
Wolf, A. H.	**Minneapolis**
Wolff, Helen B.	**Worthington**
Wolff, H. J.	**St. Paul**
Wolkoff, H. J.	**St. Paul**
Wollaeger, E. E.	Rochester
Wolstan, S. D.	Minneota
Woltman, H. W.	Rochester
‡Wood, H. G.	Rochester
†**Wood, R. A.**	**Minneapolis**
Woolling, K. R.	**Rochester**
Woolner, L. B.	**Rochester**
Word, H. L.	St. Paul
Worden, R. E.	Minneapolis
Workman, W. G.	Tracy
†Wray, W. E.	Campbell
Wright, R. R.	**Austin**
Wright, W. S.	Minneapolis
Wurdemann, Alma L.	White Bear Lake
Wyatt, O. S.	Minneapolis
Wynne, H. M. N.	Minneapolis

Yaeger, W. W.	Marshall
Ylitale, W. H.	**Hibbing**
Ylvisaker, R. S.	Minneapolis
Yoerg, O. W.	Minneapolis
Young, H. H.	Rochester
Young, T. O.	Duluth
Younger, L. I.	Winona
Youngren, E. R.	St. Paul

Zachman, A. H.	Melrose
Zachman, L. L.	St. Paul
Zaworski, L. A.	**Minneapolis**
Zeigler, C. M.	Pine River
Zemke, E. E.	Fairmont
Zick, L. H.	Rochester
Zierold, A. A.	Minneapolis
Zimmer, F. E.	Rochester
Zimmermann, H. B.	**St. Paul**
Zinter, F. A.	Minneapolis
Ziskin, Thomas	Minneapolis
†Zlatovski, M. L.	Duluth

Minnesota Academy of Medicine

Meeting of January 11, 1950

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, January 11, 1950. Dinner was served at 7 o'clock, and the meeting was called to order at 8:10 p.m. by Dr. E. M. Hammes, Chairman of the Executive Committee.

There were fifty members and two guests present.

Dr. Hammes then showed cartoon drawings of the living past presidents and read a short poem appropriate to each one, after which each living past president was presented with his cartoon drawing.

The incoming President, Dr. William Hanson, of Minneapolis, was then introduced.

Dr. Hammes called on Dr. John A. Lepak for his address as retiring President, "Challenging Problems and Demands of the Aged and Chronically Ill." (See page 450, this issue.)

Discussion

Dr. F. F. Callahan, Saint Paul: I wish to congratulate Dr. Lepak on his excellent survey of one of our most pressing problems. In 1945, when the State of Minnesota started its present plan of care of the indigent, the cost was approximately $481,000. In 1949, the cost was $4,000,000, and unless some change is made, it will be around $5,000,000 for the year 1950. The greatest part of this money is spent on care for the aged. Even with the expenditure of these large sums of money, many of the aged are still improperly cared for. Dr. Lepak mentioned the falling death rate from tuberculosis. Before the 1949 Minnesota Legislature met, it had been legally impossible to use any of our tuberculosis sanatoria for any other purpose than the care of the tuberculous. The 1949 Legislature passed the Enabling Act which will allow the communities in which these institutions are located to use them for any other useful purpose when they are no longer needed for the care of the tuberculous. When this time arrives we believe that these institutions will make desirable homes for the aged, at a relatively low cost. For many years Nopeming Sanatorium in St. Louis County has furnished care for the tuberculous in the county with a population of slightly over 200,000. With the rapid fall in the mortality and morbidity rate in this county in the past five years, the Nopeming staff believes that it will be able to furnish treatment for a population of 500,000 in another five or six years. If this trend continues, it is quite possible that approximately 250 beds previously used for tuberculous cases can be turned over for the care of the aged. While the number of beds will not take care of the problem completely, it would be quite a help in many communities.

Dr. Walter P. Gardner, Saint Paul: I wish to express my appreciation to Dr. Lepak for his fine presentation of these problems. As chairman of the subcommittee on Chronic Hospitals of the State Advisory Council on Hospital Survey and Planning under the Hill-Burton bill, I wish to call attention to the following fact. The proposed program for chronic hospitals in the state of Minnesota, set forth on the slides which have just been shown, is correct. One should not get the impression, however, that this program is going to be carried out in the near future. In fact, there is no possibility of reaching the goals set forth within the next five years. It is very probable that these goals will never be reached. If any large part of this proposed program is to be carried out, the funds for so doing will have to come through taxes rather than through private subscriptions. This, however, does not alter the fact that the goals are worthy and that efforts should be continued at all times to secure as large a part of the program as possible.

Dr. Erling Hansen, Minneapolis: My remarks are more or less anticlimactic to this paper, but I couldn't help being struck with the percentage which Sangamon County, Illinois, showed in dependent or public aid because of blindness. In the picture section of a recent *Minneapolis Sunday Tribune,* there was a quotation from Dr. Benedict's speech before the National Society for the Prevention of Blindness, in which he called attention to the fact that many of these people are living longer and that eye conditions in the aged are increasing markedly. It is true that cataracts are primarily an affliction of older people; that is not blindness. But it causes a good deal of disability in older people. Glaucoma, which is one of the primary causes of blindness, is a major condition which we find increasing with increased longevity. Many of the people who have been kept alive by our modern treatment for diabetes have not been insured against diabetic retinopathy, with resultant poor vision or actual blindness. Also, people with hardening of the arteries have a certain amount of degeneration in the retina, not actual blindness, which still causes a good deal of disturbance of vision. Those are real problems, and the striking thing in the Sangamon County picture was that over 63 per cent of the people who were dependent on public aid were there because of blindness. It is very important.

Dr. Lepak (closing): I wish to thank the gentlemen for their generous discussion of the paper and I want to say to Dr. Gardner that the plan proposed for the next five years is subject to change each year.

* * *

The meeting was adjourned.

Wallace P. Ritchie, M.D., *Secretary*

STATES GET $47 MILLION IN GRANTS IN YEAR

Public Health Service annual report, released recently, shows grants to states totaled 47 million dollars for year ended July 1, 1949. The breakdown by millions of dollars is: general health, 11.2; venereal disease, 12.7; tuberculosis, 6.7; mental health, 3; cancer, 2.3. At end of year, thirty-five new hospitals had been built under the Hospital Construction Act, an additional 355 were under construction, and plans had been approved for 500 more.

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Accepted Council on Pharmacy and Chemistry American Medical Association

SEARLE

✦ Reports and Announcements ✦

AMERICAN COLLEGE OF CHEST PHYSICIANS

The sixteenth annual meeting of the American College of Chest Physicians will be held at the St. Francis Hotel, San Francisco, California, June 22 through 25. An interesting scientific program has been arranged for the meeting.

The board of examiners of the American College of Chest Physicians announces that the next oral and written examinations for fellowship will be held in San Francisco on June 22. Candidates for fellowship in the College who would like to take the examinations should contact the Executive Secretary, American College of Chest Physicians, 500 North Dearborn Street, Chicago 10, Illinois.

Dr. Karl H. Pfuetze, Cannon Falls, serves as the governor of the College for the State of Minnesota, and Dr. John F. Briggs, Saint Paul, is the residing president of the Minnesota chapter.

AMERICAN CONGRESS OF PHYSICAL MEDICINE

The American Congress of Physical Medicine will hold its twenty-eighth annual scientific and clinical session August 28, 29, 30, 31 and September 1 at the Hotel Statler, Boston, Massachusetts. All sessions will be open to members of the medical profession in good standing with the American Medical Association. In addition to the scientific sessions, the annual instruction seminars will be held. These seminars will be offered in two groups. One set of ten lectures will consist of basic subjects and attendance will be limited to physicians. One set of ten lectures will be more general in character and will be open to physicians as well as to therapists who are registered with the American Registry of Physical Therapy Technicians or the American Occupational Therapy Association. Full information may be obtained by writing to the American Congress of Physical Medicine, 30 North Michigan Avenue, Chicago 2, Illinois.

NATIONAL CONFERENCE OF COUNTY MEDICAL SOCIETY OFFICERS

The seventh National Conference of County Medical Society Officers will be held at the Palace Hotel, San Francisco, on June 25, the day preceding the first meeting of the House of Delegates of the AMA. All physicians are urged to attend, particularly county medical society officers. Each address will be followed by a discussion period open to those in attendance.

The meeting will begin with registration at 9:00 a.m. and a call to order at 9:20 a.m. by Dr. A. M. Mitchell, chairman.

A questionnaire on socialized medicine will be given those in attendance, and the result will be announced before the lunch period.

Subjects, such as "How to Set Up a County Medical Society Record System," "How to Organize a Community Health Council," "Providing Special Benefits through County Medical Society Membership," will occupy the morning session.

The evening session will be devoted to a discussion of "The Third Party in the Practice of Medicine" (Insurance Companies, Hospital and Medical Care), "Hospitals and the Practice of Medicine."

This will be a grass roots conference, and physicians are urged to attend and participate.

INTERNATIONAL ACADEMY OF PROCTOLOGY

The second annual convention of the International Academy of Proctology will be held at the Bellevue Hotel in San Francisco, California, June 23, 24, 1950.

The scientific session will consist of the following papers: "Diverticulosis and Diverticulitis" by Edgar M. Scott, M.D., Birmingham, Ala.; "Surgery of Carcinoma of the Colon and Rectum" by Earl J. Halligan, M.D., Jersey City, N. J.; "Skin Covering of the Stoma Following Resection of the Rectum: Its Value in the Cases of Patients with Chronic Diarrhea" by H. A. Springer, M.D., Cincinnati, Ohio; "Psychosomatic Aspects of Proctology" by William Lieberman, M.D., Brooklyn, N. Y.; "Pectenosis, Illustrated by Colored Motion Picture and Lecture" by Manuel G. Spiesman, M.D., Chicago, Ill.; "The Nutritional Management of Patients with Colon Surgery" by Jacob J. Weinstein, M.D., Washington, D. C.; "The Preoperative Management of the Proctologic Patient" by Charles J. Weigel, M.D., River Forest, Ill.; "Diagnosis of Ano-Rectal Fistulae" by Emma L. Bellows, M.D., Southampton, L. I., N. Y.; "The Thermal Cutting Unit in Proctologic Surgery" by Alfred J. Cantor, M.D., Flushing, N. Y., and "Routine Proctoscopic Examinations of 1,000 Presumably Normal Healthy Individuals" by Caesar Portes, Chicago, Ill.

The annual banquet of the Academy will take place on Friday evening, June 23, 1950.

Further information concerning the convention and a copy of the program may be obtained by writing to the Secretary, Dr. Alfred J. Cantor, International Academy of Proctology, 43-55 Kissena Blvd., Flushing, N. Y.

VANCOUVER SUMMER SCHOOL CLINICS

Summer school clinics sponsored by the Vancouver Medical Association will be held in Hotel Vancouver from May 29 to June 2. The fee for the course is $10. Complete information can be obtained from Dr. Gordon C. Large, 203 Medical-Dental Building, Vancouver, B. C.

Speakers at the clinics will include Dr. A. L. Chute, pediatrician, Sick Children's Hospital, and associate

(Continued on Page 522)

Announcing . . .

The First
NEUROLOGIC CENTER FOR CIVILIANS
in the Northwest

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3) retraining of speech disorders
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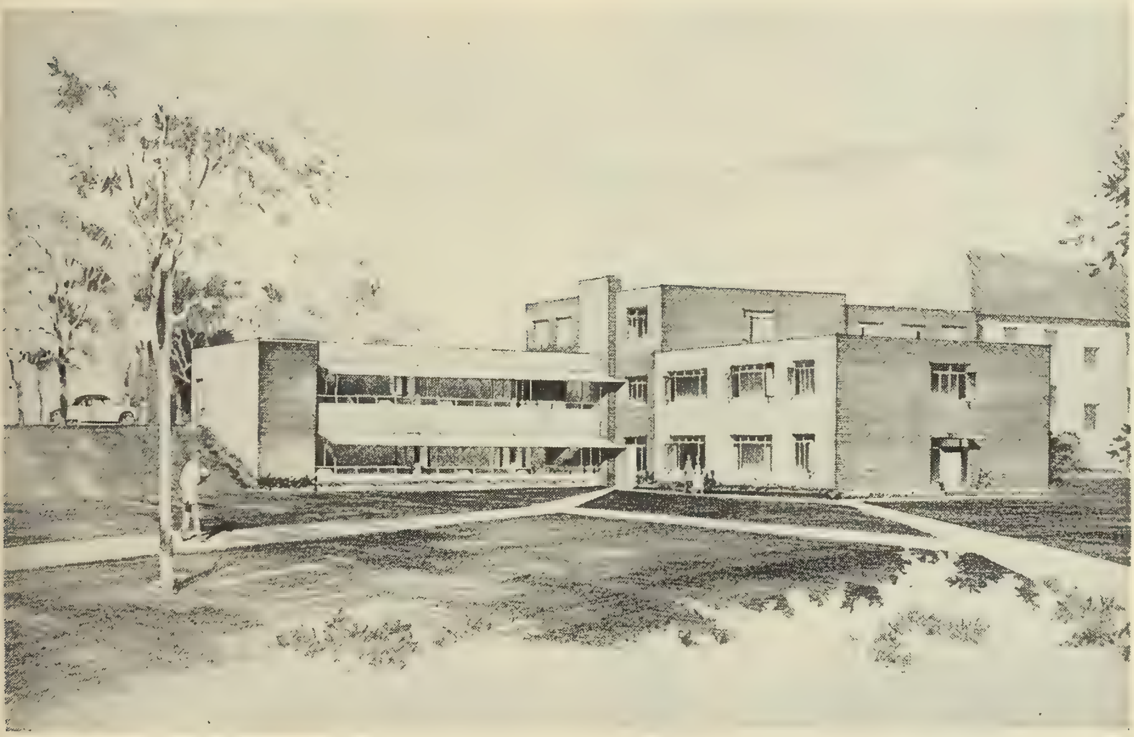

Qualified neurologists and neurosurgeons staff this center. The staff also includes qualified personnel who have been trained in special therapy, occupational therapy, corrective therapy and physical therapy.

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VANCOUVER SUMMER SCHOOL CLINICS

(Continued from Page 520)

professor, Banting and Best Department of Medical Research, University of Toronto; Dr. Howard P. Lewis, professor of medicine, University of Oregon Medical School; Professor J. Chassar Moir, of the Nuffield Department of Obstetrics and Gynaecology, Radcliffe Infirmary, Oxford, England; Dr. R. L. Sanders, associate professor of clinical surgery, University of Tennessee; and Dr. Meyer Wiener, honorary consultant in ophthalmology, Bureau of Medicine and Surgery, United States Navy.

MINNEAPOLIS ACADEMY OF MEDICINE

Dr. Owen F. Robbins was elected president of the Minneapolis Academy of Medicine at a recent meeting of the organization. He will succeed Dr. C. O. Hansen in the office on July 1.

Other officers named include Dr. John Moe, vice president; Dr. John A. Haugen, secretary; Dr. Karl E. Sandt, treasurer, and Dr. Donald C. MacKinnon, recorder.

HENNEPIN COUNTY SOCIETY

Principal speaker at a meeting of the Hennepin County Medical Society in Minneapolis on April 3 was Dr. Robert G. Bloch, professor of medicine and chief of the division of preventable diseases at the University of Chicago. Dr. Bloch presented the fifteenth annual John W. Bell tuberculosis lecture, sponsored by the Hennepin County Tuberculosis Association. The title of his address was "The Relationship of Sarcoidosis to Tuberculosis."

RICE COUNTY SOCIETY

At a meeting of the Rice County Medical Society in Faribault on March 21, Dr. Donald J. Studer of Faribault was elected president of the organization. Dr. J. C. Belshe of Northfield was named secretary-treasurer.

The principal speaker at the meeting was Dr. Raymond N. Bieter, of the University of Minnesota, who presented a paper on "Chemotherapy."

ST. LOUIS COUNTY SOCIETY

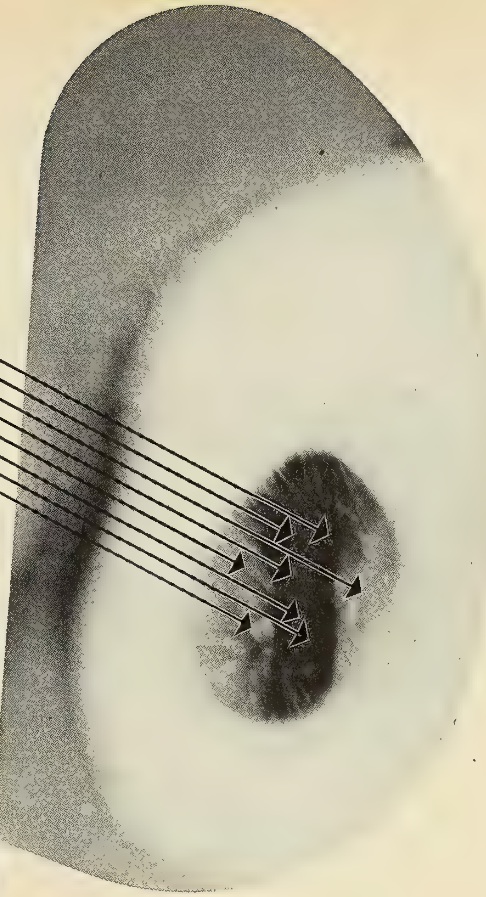
The St. Louis County Medical Society held its regular monthly meeting at St. Mary's Hospital, Duluth, on May 11.

Principal speaker at the meeting was Dr. J. W. Conn, chief of the division of metabolism and endocrinology at the University of Michigan Hospital and associate professor at the University of Michigan Medical School. Dr. Conn spoke on the subject, "Metabolic Effects in Man of ACTH and Cortisone."

Another feature of the meeting was a report by Dr. M. O. Wallace, Duluth, chairman of the society's public relations committee.

open

the nasal passages



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Woman's Auxiliary

AUXILIARY PLANS ANNUAL MEETING

Mrs. H. E. Bakkila, President

It will be a great privilege for me not only as State President but also as a member of the St. Louis County Medical Auxiliary to welcome every one of you to the twenty-eighth Annual Meeting of the Woman's Auxiliary to the Minnesota State Medical association, in Duluth, June 12, 13 and 14. The Board of Directors and our hostesses, members of the St. Louis County Auxiliary, extend a most cordial invitation to all.

The Hotel Duluth will be Auxiliary Headquarters. The registration desk will open each day at 9:00 a.m.

On Monday at 10:30 a.m. the Executive Board meeting will be held at the Duluth Athletic Club. This will be followed at 1:00 p.m. by the annual Executive Board luncheon. At 3:00 p.m. all doctors' wives attending the convention will be guests at a tea at Northland Country Club honoring state officers. St. Louis county auxiliary members will be hostesses.

Monday evening the Minnesota State Medical association and the St. Louis County Medical Society are holding open house in the ballroom at the Hotel Duluth. The Physician's Symphony will play, and a square dancing group will entertain. There will be dancing from 9 to 12 p.m.

The Annual Meeting will be held Tuesday at 10:00 a.m. in the Hotel Duluth. The election of officers is at this meeting. The annual luncheon will be at 1:00 p.m. in the Harbor Room of the Flame. The new president will be awarded the president's pin. A style show will be presented by Oreck's store.

At 10:00 a.m. Wednesday, all visiting members are invited to be the guests of the St. Louis County Medical Auxiliary at the annual Roundup Breakfast at the Hotel Duluth.

The members of the St. Louis County Medical Auxiliary and all State officers and board members are anxious to have the wife of every physician in Minnesota present at this convention, so whether or not you are a member, do join in making this—our twenty-eighth annual meeting—a great success.

THE IMPORTANCE OF HEALTH DAYS

Mrs. H. F. Wahlquist, Health Day Chairman

Health Days, innovated in Minnesota, have almost become an institution in the state. Since the fall of 1947 when plans began for the first rural area Health Day, at least fifteen have been held in almost every trade area of the state. In addition, smaller health meetings have been held in numerous communities.

Health Days are speeding a growing realization that community health problems are everyone's concern. Because health is a community problem, and is interwoven in community living with other problems such as education and politics, any solution of one would make for progress in solving the others. But, to be successful in any undertaking, citizens of a community need to work together.

Health Days tend to get people to think about health problems. Through them the members of a community learn that health problems are their responsibility. During the meetings they are given accurate information, learn health truths and receive practical ideas on preventing disease. They are urged to look to reliable sources for information and are made aware that today the emphasis is on positive health—preventive medicine. They learn, too, that various factors like nutrition, recreation, housing, sanitation, immunization, clothing contribute to good health and that these are not the sole responsibilities of physicians, but the responsibilities of citizens of their respective communities. Finally they realize that these problems are handled best through public efforts in their own community.

First of all, successful Health Days are the product of many minds and hands. It is not strategic for any one organization in a community to try to put on a large Health Day alone. Health Days should be arranged and planned not by a few people, but by many people. They belong to everyone in the community and everyone must feel he has had some part in making them a reality, i.e., arranging the exhibits, planning the program, registering the people, writing the radio script, setting up the chairs or passing out the programs.

Furthermore, the success of Health Days relates directly to the workable organization which is set up to guide them, to the leaders participating in committee responsibility, to the publicity, and to the attractiveness of the program. Co-sponsored by the Minnesota State Medical Association, the State Department of Health and the Woman's Auxiliary to the state medical association, an initial planning meeting in the community must include representatives of all community organizations.

People who really do things should be selected as leaders in Health Day planning. Acting as heads of committees, leaders must show real interest and a willingness to give time and effort. They must know how to work with people. Publicity for Health Days can take many forms. It can be in the form of letters to heads of organizations, ministers, city officials, school superintendents; in the form of announcements in clubs, churches, schools; or through radio interviews and transcriptions. However, the most effective means of getting people awakened to the significance of Health Days is by enthusiastic personal contact—telling neighbors and friends about Health Days.

Programs for Health Days have various possibilities. Community needs vary greatly and programs must meet local needs. It is best to start at home and learn what the people can most readily absorb—consider if the locale is rural or urban, one county or many.

The program may be divided into sessions: morning,

(Continued on Page 526)

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IMPORTANCE OF HEALTH DAYS

(Continued from Page 524)

afternoon and evening. The type of community again should determine whether the program will begin in the morning and close at 4:30 p.m., with elaborate plans for an evening session, or whether just morning and afternoon sessions are better. Some communities may want to plan only an afternoon or an evening meeting.

Programs may include various methods of presenting material: round table discussions, a series of short ten-minute talks, one or two longer talks with a question-and-answer period, several half hour talks, health movies. They begin with a proper welcome and keynote address. If plans include an evening meeting, the speaker should be dynamic and, preferably, a prominent citizen of the state.

The members of the program committee should be representatives of various organizations of the community. They should be aware of community health needs, and have varied community interests. They should be experienced and realize what people in the community understand and want; enabling them to work out a meaningful program for their community.

Further program hints are:

1. Begin to plan the program two months before the Health Day.
2. Point up the objective of Health Day. Remember the first object is to study apparent needs, then to arouse people in the community to learn about those not evident. A definite plan of action to solve certain problems may evolve from an enthusiastic and "ready for action" audience.
3. Fill the program with a variety of health information and discussions about health problems.
4. Engage speakers outside of the community to bring diversity.
5. Put local people on the program to make good home town news and to help make the day belong to the community.
6. Use key people who are responsible for legislation and law enforcement as the presiding officers of the day.
7. Include someone from each county on the program if several counties combine to have a Health Day—a public health nurse, superintendent of schools, county commissioner, teacher, homemaker, minister, judge.
8. Plan a program in which a fair measure of success is assured. Start at the experience level of the people concerned—give them something they can do as individuals or parents in their community or home.
9. Remember no two Health Day programs can be alike.
10. Inform the speakers the amount of time they may have and insist they keep it.
11. Start on time, stop on time.
12. Stress the importance of everyone being friendly—provide a time for getting acquainted.
13. Keep the sessions peppy.

Many additional features may be included in Health

(Continued on Page 528)

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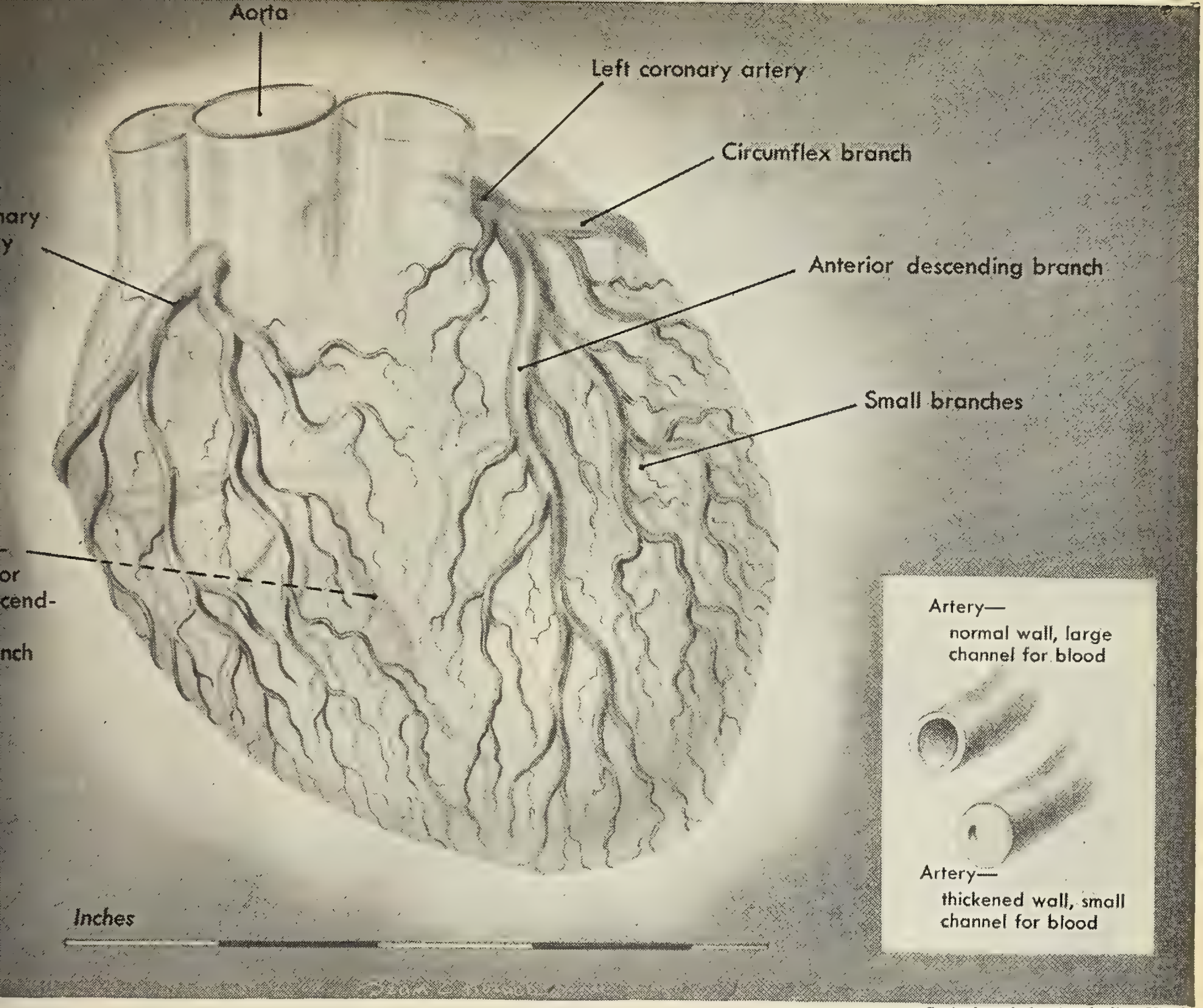

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IMPORTANCE OF HEALTH DAYS

(Continued from Page 526)

Day plans. Voluntary health organizations are eager to co-operate. They seek earnestly the opportunity to co-operate and will set up exhibits and man their own booths. Noon sack lunches in smaller communities are helpful. They provide, while people are eating together, the surroundings for friendly visits among neighbors. Essay or poster contests on current health topics stimulate local school interest in Health Days and increase attendance. Band concerts give young people a chance to do something toward Health Day planning.

Through Health Days, citizens have learned many things. They have learned how to prevent wasteful duplication of effort. They have discovered their own local health needs and found out that, through their own local resources, they can do a good public health job. The speakers and movies have helped them substitute truth for mistaken and distorted ideas about health. Finally they have come to know one another better and enjoyed the privilege of working with one another for the good of their community.

It is important to recognize that Health Days are only the first step. What grows out of them is what counts. County health councils have been formed, food handlers' schools organized, county public health nurses employed, dental clinics held, weekly radio programs on health arranged, emotional health committees organized. Today these are carrying on where Health Days left off. Through these channels the community interest in health is being kept alive and functioning.

Great opportunities are open to wives of physicians today. The cause of medicine definitely needs support. Through untiring effort and co-operating, a contribution will be made toward public education in the closely related fields of medical science and medical economics.

SOUTHWESTERN AUXILIARY HEARS SPEAKER

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Members of the Southwestern Medical Auxiliary heard Miss Laura Hegstad, Cancer Nursing Consultant, Minnesota Department of Health, speak on "How Can We Help in the Cancer Control Program in Our Communities?"

Miss Hegstad spoke at a dinner meeting on April 10 at Worthington.

The hostess was Mrs. F. L. Schade. She was assisted by Mrs. E. A. Kilbride, Mrs. P. J. Pankratz and Mrs. E. S. Schutz.

The great physicians of all time have understood that medicine is not a study of disease, but a study of man: an individual who is a member of a family and who is part of a community. . . . The purpose of medicine is to make available to all the people, in the greatest possible degree, the achievements of science as they relate to the promotion of health and to the prevention and treatment of disease.—W. G. Smillie, M.D., *New England J. Med.*, January 12, 1950.

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In Memoriam

JAMES KERR ANDERSON

Dr. James Kerr Anderson of Minneapolis died on March 27, 1950 at the age of fifty-eight.

Dr. Anderson was born in East Liverpool, Ohio, July 11, 1891. He received his liberal arts degree from Washington and Jefferson College at Washington, Pennsylvania, in 1913 and his medical degree from Johns Hopkins Medical School in 1917.

He came to Minneapolis to intern at the Minneapolis General Hospital in 1917, after which he entered the Army in World War I as a First Lieutenant. After the war he spent the years 1920 to 1924 as a patient in Glen Lake, Sanatorium, after which he acted as superintendent of Pokegama Sanatorium for a year and of Sunnyrest Sanatorium at Crookston from 1925 to 1929. He then began practice in Minneapolis.

Dr. Anderson was a fellow of the American College of Surgeons, a fellow of the American Proctologic Society, a diplomate of the American Board of Surgery in Proctology, a member of the Minnesota Academy of Medicine, the Minneapolis Academy of Medicine and the Hennepin County Medical Society. He was a Clinical Associate Professor of Surgery at the University of Minnesota and a co-author with Dr. H. O. McPheeters of a book entitled "Injection Treatment of Varicose Veins and Hemorrhoids." He was also a past national president of the medical fraternity, Phi Beta Pi.

Dr. Anderson is survived by his widow, Clara; a daughter, Mrs. Robert Osgood of Arlington, Massachusetts, and his mother, Mrs. Nettie Anderson of Pittsburgh, Pennsylvania.

JOHN CURRER BARTON

Dr. John Currer Barton of Washington, D. C., died February 12, 1950, following an illness of several months.

Dr. Barton was born in Two Harbors, Minnesota, July 8, 1906, and attended the University of Minnesota Medical School from which he was graduated in 1934. After his internship at Milwaukee County Hospital he was on the staff of the Independence State Hospital, Independence, Iowa, for several years.

Holding a reserve commission since graduation he was called to active duty in 1940 and served five years, separating with the rank of colonel in command of the 131st General Hospital overseas. He then became medical consultant to the Claim Service of the Veterans Administration in St. Paul and was transferred to Washington in 1949.

Dr. Barton was a member of Acacia, Phi Beta Pi, Ramsey County Medical Society, Minnesota State Medical Association, the American Medical Association and the American Psychiatric Association.

He is survived by his wife, Helen Brockman Barton, who was also his classmate; a daughter, Sandra, and two sons, John and Craig, of Bethesda, Maryland.

Leo A. Nash, M.D.

WILLIAM K. FOSTER

Dr. William K. Foster, for many years a figure in athletics at the University of Minnesota and in Minneapolis high schools, died following a heart attack February 25, 1950.

Dr. Foster was born at White Plains, Alabama, December 1, 1878. He attended the University of Minnesota from which he obtained the degrees of LL.B., LL.M., A.B., M.B., and M.D., the last in 1920. He interned at the Minneapolis General Hospital.

He was medical examiner for Minneapolis high school athletics for twelve years and served as Dr. Cooke's assistant at the University of Minnesota for sixteen years. Gymnastics was his favorite sport, and he had just completed writing a book on the history of that activity at Minnesota.

Dr. Foster is survived by his widow, one daughter, Mrs. Willis E. Dugan of Minneapolis; four brothers, Dr. James M. Foster of Minneapolis and Dr. John, Mark and Oscar, all of Ruston, Louisiana, and two sisters, Mrs. Elizabeth Doss and Mrs. Eula Fuller, both of Ruston.

GEORGE DOUGLAS HEAD

Dr. George Douglas Head, dean of Minneapolis internists, died at his home, 55 Dell Place, on December 19, 1949, after fifty-three years of medical practice, in his eightieth year.

He was born in Elgin, Minnesota, on September 10, 1870. His parents, Mary Elizabeth Douglas and Newell Samuel Head, were of Scotch-English extraction. He received his elementary education in the schools of Plainview and Elgin, Minnesota. He graduated from Fargo high school and received his B.S. and M.D. degrees from the University of Minnesota in 1892 and 1895. He pursued postgraduate study under William Osler in 1902 at Johns Hopkins. In 1905 and 1908, he engaged in further postgraduate work at the University of Vienna and the University of Edinburgh.

His first early years, after graduation from medical school, were divided between assisting Dr. William Hunter, then head of the Department of Medicine at the University of Minnesota medical school, and building a general practice in southeast Minneapolis at the corner of Washington and Oak Street. After the inspiration of Sir William Osler's contact and teaching, Dr. Head decided to devote his life to the specialty of internal medicine, and thus became the first physician in Minneapolis to confine himself strictly to this field.

After completion of his medical course in 1895, he continued his academic career by serving his alma mater in the teaching capacities of Assistant in the Dispensary 1895-97; Instructor of Clinical Microscopy 1895-1906; Assistant Professor of Clinical Medicine and Microscopy 1905-10; and Associate Professor of Medicine 1910.

(Continued on Page 532)

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GEORGE DOUGLAS HEAD

(Continued from Page 530)

From 1902 to a year before his death, he engaged actively in the specialty of internal medicine, and his special interests were diseases of the heart and lungs. Current literature received some fifty-two scientific contributions, and he was the author of a monograph, "Concealed Tuberculosis," published by Blakiston. He will be well remembered for his diagnostic acumen, his careful painstaking physical examinations, and his kindly, and at times, remarkable patience—an attribute that endeared him to patients and students alike—for he was a great teacher in the art and science of medicine. In therapy, he was fundamentally a nihilist, holding that nature must be relied upon, and that simple drugs might be used to encourage her if they offered little or no risk of hampering her.

The last forty years of Dr. Head's life were greatly influenced by the development of diabetes mellitus in 1910, undoubtedly inherited from his mother who died of the disease. He was forced to give up his medical teaching at the University, resign from several public positions and curtail his social activities. At this time, he was convinced that he had no more than five to ten years to live. He adhered with Spartan tenacity to a Newburgh-Marsh high fat, high protein diet for the next twenty years, which kept up his body weight, almost eliminated the urinary sugar, but produced chronic ketonuria with acetone usually three to four plus. This, together with increased rest and daily regular physical exercise, enabled him to keep on with his professional work.

In 1918, Dr. Head and his diabetes volunteered for service in World War I, but he was rejected on three different occasions. Finally, in October of the same year, the Surgeon-General, desperate for doctors, accepted him for service within the continental limits. Dr. Head then served for eight months as Major and Chief of the Medical Service at the base hospitals in Camp Wheeler, Georgia, and Camp Devons, Massachusetts. It is an interesting sidelight that his army service with its regular hours and relative freedom from nerve tension proved to be of salutary effect on his disease. In 1921, Dr. Head contracted a mild virus encephalitis from which he recovered in a few months, but which left him with paralysis agitans in his later years. He first found it necessary to take insulin in 1930 when it probably saved his life, for diabetic coma set in as a result of a severe pyelonephritis associated with right kidney stones. In 1938, insulin and sulfathiazole enabled him to successfully undergo a right nephrectomy, and in the subsequent years, he found it necessary to take sulfadiazine once a week to curb his left pyohydronephrosis. Dr. Head's anginal syndrome started with mild transient attacks three years before his death. His blood pressure was always normal. He suffered three attacks of coronary thrombosis with the final lethal episode—a femoral artery embolus. The findings were substantiated by postmortem examination.

Dr. Head's honors were many, and he was a member of many scientific societies. He was president of the Hennepin County Medical Society in 1922 and the Min-

(Continued on Page 534)

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GEORGE DOUGLAS HEAD

(Continued from Page 532)

nesota State Medical Association in 1926. He was chief of staff of Abbott Hospital in 1928. His fraternities were Nu Sigma Nu, Delta Tau Delta, Sigma Xi, and Alpha Omega Alpha. However, one of his most cherished memories was his activity as founder and later as president of the Minnesota Society of Internal Medicine.

Dr. Head is survived by his wife, Sarabel Parry, his son, Douglas Parry, and five grandchildren.

CHARLES HARCOURT JOHNSON

Dr. Charles H. Johnson of Spring Valley, Minnesota, passed away March 16, 1950 at Worrall Hospital in Rochester.

Dr. Johnson was born January 26, 1886 in Spring Valley, Minnesota. He obtained his medical degree from the University of Illinois in 1912. He served as a Lieutenant in the Medical Corps of the Army in World War I.

Dr. Johnson was united in marriage to Lillian Low, February 7, 1912. He is survived by his widow and four children: Dr. Ross H. Johnson of Austin, Miriam Johnson of Los Angeles, Charles Wayne Johnson of Colome, South Dakota, and Dr. William D. Johnson of Spring Valley.

WALTER W. NAUTH

Dr. Walter W. Nauth, one of the founders of the Winona Clinic at Winona, Minnesota, died from a heart attack at Sarasota, Florida, on February 22, 1950.

Born in Mitchell, South Dakota, July 5, 1884, Dr. Nauth moved as a boy to Milwaukee and graduated from Marquette Medical School in 1907. He practiced in Minneiska, Minnesota, for nine years, Stanbaugh and Penboga, Michigan, each for a year. He became a medical officer in the army during World War I but in 1917 received an honorable medical discharge because of a heart lesion.

Dr. Nauth began practice in Winona in 1917 and in 1920 with Dr. E. S. Muir and Dr. E. M. McLaughlin founded the Winona Clinic. In recent years, because of a heart ailment, he spent much time in his workshop in the basement of the Clinic.

Dr. Nauth was a 32nd degree Mason and member of the Winona Scottish Rites bodies and of Osman Temple of the Shrine at Saint Paul. He was also a member of the Winona Elks Lodge, the Improved Order of Red Men, the Fraternal Order of Eagles, the Winona County medical society and the Minnesota State and American Medical Associations.

Dr. Nauth is survived by his widow, a son, Bernard, and four grandchildren.

ALBERT W. SHAW

Dr. Albert W. Shaw of Buhl, Minnesota, died April 16, 1950, in Virginia Municipal Hospital after an illness of eight weeks. He was seventy-nine years of age.

Dr. Shaw was born in Levant, Maine, February 25, 1871. He acquired his early education at Levant and in the grade schools and a preparatory school in Cambridge, Massachusets. He came to Minneapolis in 1888 and engaged in the grocery business to accumulate funds to acquire a medical education. He graduated from the University of Minnesot Medical School in 1899 and interned three years at Eveleth Hospital. On September 9, 1901, he went to Buhl as company physician for the Sharon Ore Company and the Drake-Stratton Company.

In September, 1918, he built a handsome brick hospital with modern laboratory facilities which was later sold to St. Louis County for use as a county institution for the chronically ill. He retired eighteen years ago from general practice and fifteen years ago moved to Virginia.

Dr. Shaw married Anne Laura Purdy of Logansport, Indiana, on September 24, 1902. She preceded him in death on November 24, 1947. Three children survive.

FRANK WILLIAM SPICER

Frank William Spicer, A.B., M.D., was born in Blairstown, Iowa, November 30, 1878. He died in Duluth, Minnesota, on January 21, 1950. Graduating from the University of Pennsylvania Medical School in 1908 and serving internship at the Methodist Hospital in Philadelphia, he practiced medicine for a period in Crystal Falls, Michigan. He moved to Duluth, Minnesota, in 1912 where, except for his service in the United States Army Medical Corps which included an assignment overseas, he spent the rest of his active career.

He received his preliminary education in Iowa and graduated from Coe College in 1899. He gave several years to teaching; first in Northfield, Minnesota, where he taught Greek and History in the high school. In 1903 he accepted the call and a teaching assignment in the Philippines, a period after the Spanish-American War when under American guidance a notable plan of advanced education was inaugurated. In later life he frequently referred to his experience in the Philippines and without question it greatly helped to broaden the life already capable of encompassing the best of our American traditions, scholastic, social, moral and intellectual. Frank's father was a doctor and it was his experience in the Philippines and later on visits to China, Japan and Guam that he developed the interest and the urge to return to the States and study medicine.

Frank Spicer was one of the first physicians in Northeastern Minnesota to devote all his time to internal medicine. He cemented interest in his field by obtaining membership in the American College of Physicians (Fellow 1922); membership in the Minnesota Society of Internal Medicine; and through his years of activity in establishing the medical staffs of both St. Mary's and St. Luke's Hospitals in Duluth. At one time he served as chief of medical service in each hospital and did much to wisely and conservatively guide his fellows. He was also active in the work of the American Legion and gave to the legion and to the rehabilitation of disabled veterans a fine personal service.

In 1939, he published "Trauma and Internal Disease" (J. B. Lippincott & Company.) To the writing of this work he gave several years of research and review of the extensive literature. The book has found a favorable reception among critics and a place in many private

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and public medical libraries. He was a member of the First Presbyterian Church, in Duluth, where he met and married Madeline Miller, the church organist, in 1915. To them were born four children: Dr. Frank W. Spicer, Jr., Buffalo, New York; Richard G. Spicer, Duluth, Minnesota; Mrs. Thomas G. Bell, Jr., Duluth, Minnesota, and Mrs. Clark MacGregor, Wayzata, Minnesota. In addition, three grandsons and two granddaughters survive him.

Frank W. Spicer was an earnest, conscientious student and citizen all his life. In his later years he used to be commended for his very particular and specific guidance of an appreciative clientele, teaching them the while "to grow gracefully." In him they found the best of examples and the most wholesome of guidance.

E. L. Tuohy, M.D.

JULIUS R. STURRE

Dr. Julius R. Sturre, physician of Minneapolis and president of the Minnesota division of the Izaak Walton League of America, died March 28, 1950 at the age of fifty-five.

Dr. Sturre was born in St. Cloud, Minnesota, August 7, 1894. He attended Central High School in Saint Paul and obtained his M.D. degree from the University of Minnesota in 1918. After serving with Base Hospital 26 during World War I, he practiced for a short time in Saint Paul and in Watkins before coming to Minneapolis in 1926. He was mayor of Watkins from 1923 to 1926, and president of the Meeker County Medical Society in 1924.

Dr. Sturre, who had served on the national board of directors of the Izaak Walton League, became state president last December. He was for years interested in movements to conserve soil, eliminate water pollution and protect wild game. He was a member of the Minnesota Conservation Federation and a past president of the National Wild Life Federation and of the Fur, Fin and Feathers Club. He was a member of the Business and Professional Men's post of the American Legion, Knights of Columbus and of Phi Beta Pi, medical fraternity. He was also a fellow of the International College of Surgeons and a member of the Hennepin County medical society.

Dr. Sturre is survived by his wife, Winifred; a daughter, Mrs. Arthur Engstrom; a son, Richard; and his mother, Mrs. Gerhard Sturre of St. Cloud. One son, Julius, was tragically killed in 1940 at the age of sixteen in an automobile accident.

JOHN DOUGLAS WATSON

Dr. John D. Watson, a practitioner at Holdingford, Minnesota, from 1915 to 1940, passed away February 13, 1950, in a Saint Paul hospital.

Dr. Watson was born at Socorro, New Mexico, November 19, 1885. He attended high school in London, Ontario, and obtained his medical degree from the University of Western Ontario at London in 1907.

He practiced at Welton, Iowa, from 1907 to 1915 before moving to Holdingford. He served as a first lieutenant in the Army during World War I, having been stationed at Fort Douglas, Salt Lake City.

Dr. Watson is survived by his wife, Edith; a daughter, Mrs. Peter Holliday of Chicago; a son, Dr. William J. Watson of Saint Paul and a sister, Mrs. George Carmen of Battle Creek, Michigan.

Dr. Watson was a member of the Upper Mississippi Medical Society, the Minnesota State Medical Association and American Medical Association.

OLAF S. WERNER

Dr. Olaf S. Werner, for more than a half century a practitioner at Lindstrom, Center City and Cambridge, Minnesota, passed away March 24, 1950 at the home of his daughter, Mrs. Roy T. Sorensen, in Saint Paul.

Dr. Werner was born in Konga, Sweden, November 10, 1866. He received his Bachelor of Arts degree from Lund University in 1890. He came to the United States and continued his studies at Augustana College, Rock Island, Illinois, where he was ordained a Lutheran minister. He received his M.D. degree from Milwaukee Medical College in 1897. He was naturalized in 1898. He practiced in Manistique, Michigan, from 1897 to 1899, in Lindstrom, Minnesota, from 1899 to 1921, in Saint Paul from 1924 to 1928 and in Cambridge from 1928 to 1942.

Dr. Werner is survived by his wife, a son, Dr. Robert Werner of Los Angeles, and a daughter, Mrs. Floyd E. Brennen of Saint Paul.

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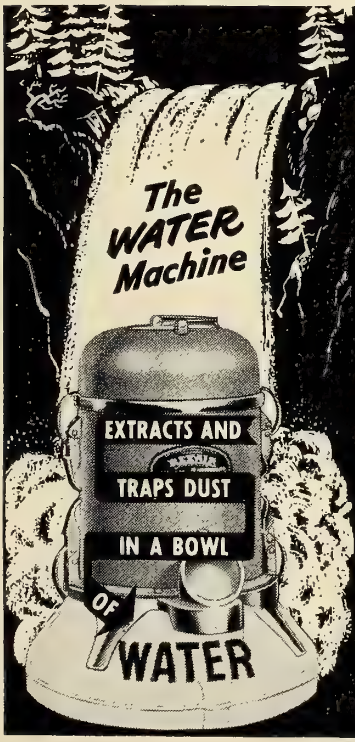

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A method for locating a brain tumor by means of extremely high frequency sound waves has been developed in Minneapolis by Dr. John J. Wild and Dr. Lyle A. French, assistant professor of neurosurgery at the University of Minnesota.

The method makes use of an "ultrasonascope," which, when connected to radar equipment, sends ultrasonic pulses into tissue and then picks up their echoes as they bounce back. The echoes are converted into electrical impulses and made to appear as a fluorescent pattern on a screen. With tumor tissue denser than the tissue around it, the waves take a longer time to pass through the tumor and echo back. Differences in echo time can readily be seen on the screen.

Still in experimental stages, the method apparently produces no injury to the brain.

* * *

Dr. Gaylord Anderson, director of the University of Minnesota School of Public Health, has been elected chairman of a state poliomyelitis planning committee.

* * *

Dr. M. J. McKenna, Grand Rapids, attended the annual four-day clinical conference of the Chicago Medical Society which was held in Chicago early in March.

* * *

The Austin Clinic announced on March 21 that **Dr. H. P. Van Cleve,** formerly of Dodge Center, had become a member of the clinic staff. A graduate of the University of Minnesota Medical School, Dr. Van Cleve interned at Minneapolis General Hospital, then completed a residency at Swedish Hospital, Minneapolis. His addition to the Austin Clinic staff fills the vacancy created when Dr. Paul Hauser left the clinic on January 1 to resume postgraduate studies.

* * *

Dr. E. M. Hammes, Saint Paul, spoke on "The Medical Expert Witness" at the annual meeting of the Iowa State Medical Society in Burlington, Iowa, on April 24. His talk was presented with special reference to the work of the Medical Testimony Committee of the Minnesota State Medical Association.

* * *

Dr. H. H. Russ of Blue Earth has been invited to serve as a member of the National Cerebral Palsy Parents Advisory Council for one year. The honor was given the physician because of his work with the Spastic Club and the numerous speeches he has made on cerebral palsy problems. The council is appointed on an annual basis to act in an advisory capacity in the development of the national society's program.

* * *

Three Duluth physicians were on the program at the regional meeting of the American College of Surgeons in Winnipeg on April 3. The three were Dr. Arthur H. Wells, Dr. O. E. Sarff and Dr. Mark Tibbetts.

* * *

Dr. Harold W. Hermann, formerly of Caledonia, has moved to Minneapolis to practice in the field of pediatrics. Dr. Hermann was graduated from the University of Minnesota Medical School in 1946.

* * *

After forty-three years of practice in Bird Island, **Dr. Ralph C. Adams** announced his retirement from active practice late in March. His practice will be conducted until July 1 by Dr. George H. Mesker, formerly of Olivia but now staff member of the Cambridge State Hospital. Dr. Adams announced that on July 1 he will sell his practice to a young man who is currently completing his internship.

A graduate of the Jefferson Medical School in Philadelphia, Dr. Adams was one of the pioneer physicians in Bird Island and Renville County. Always interested in social, civic and fraternal activities, he helped to organize the Renville County Medical Society and participated in numerous local civic events. He has served as surgeon for the Milwaukee Railroad since 1909.

For several months prior to the anouncement of his retirement, Dr. Adams had been practicing only on a part-time basis due to ill health.

* * *

Dr. Lois A. Day, formerly on the staff of the Mayo Clinic, left Rochester late in March to become associated for six months in private practice in Saint Paul with Dr. Frank W. Quattlebaum and his wife, Dr. Jane Hodgson. A graduate of the University of Chicago, Dr. Day interned at University Hospitals, Minneapolis, and entered the Mayo Foundation as a fellow in obstetrics and gynecology in 1934. She became a member of the clinic staff in 1938.

* * *

Dr. S. A. Slater, superintendent of the Southwestern Minnesota Sanitorium, located near Worthington, was a guest at a meeting of the Jackson Kiwanis Club on March 6.

* * *

Major Jules O. Meyer, a former Grand Rapids physician, is in Europe and is stationed with the 546th Medical Clearing Company in Frankfurt, Germany, as chief of professional services, it was announced on March 30. Dr. Meyer was graduated from the University of Minnesota in 1938.

* * *

Guest speaker at a meeting of the junior-senior high school Parent-Teachers Association in Stillwater on April 18 was **Dr. Albert V. Stoesser,** Minneapolis. Dr. Stoesser discussed physical development of teen-agers and requirements for normal growth.

WELCOME!

We desire to extend welcome to the delegates and members of the Minnesota State Medical Association at its Annual Convention to be held in Duluth, June 12, 13 and 14.

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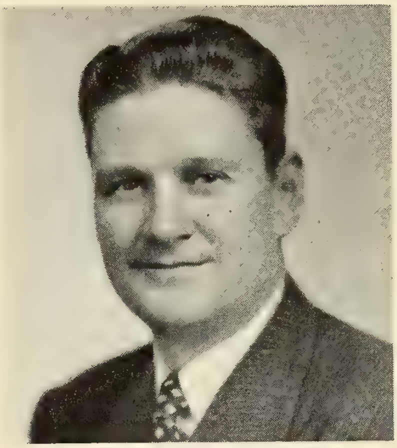

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Dr. William L. Benedict, of the section on ophthalmology at the Mayo Clinic, has been named a consultant and member of the advisory committee of the National Society for the Prevention of Blindness.

* * *

The principal speakers at a medical seminar held in Mankato on March 14 were **Dr. Arnold J. Kremen,** assistant professor of surgery at the University of Minnesota, and **Dr. Forrest H. Adams,** assistant professor of pediatrics at the University. The meeting was the second of a series of eight being conducted in Mankato for physicians of the area. The title of Dr. Kremen's address was "Cancer of the Gastrointestinal Tract," and Dr. Adams' subject was "Rheumatic Fever."

* * *

Dr. Joseph E. McCoy, Thief River Falls, celebrated his eightieth birthday in February. A graduate of the University of Louisville, Kentucky, in 1897, Dr. McCoy has practiced medicine for fifty-three years. Lately he has been devoting his attention mainly to the manufacture and distribution of a compound for treating ulcers.

* * *

Members of the **Oliver Clinic** in Graceville were busy attending various meetings during the early part of March. Dr. I. L. Oliver attended the annual meeting of the Chicago Surgical Sosiety in Chicago. Dr. N. W. Wagner spent a few days at the University of Minnesota's Center for Continuation Study, participating in a course of pediatrics. Dr. G. L. Barnett attended the county medical society officers' meeting in Saint Paul. Dr. Barnett had previously advanced from vice president to president of the West Central Minnesota Medical Society, upon the resignation of Dr. Wayne Rydhag of Brooten, who had moved to Minneapolis.

* * *

On April 1, **Dr. Robert Estrem** returned to his post at the Estrem Clinic in Fergus Falls. He had been on leave of absence from the clinic for three and one-half years while studying surgery at the University of Minnesota and Minneapolis Veterans Hospital. Back at the Estrem Clinic he is limiting his practice to surgery.

* * *

Dr. Ralph Rossen, state commissioner of mental health, gave a talk at a meeting of members, husbands and friends of the University of Minnesota Faculty Women's Club in the Coffman Memorial Union on March 16. A motion picture on mental health, entitled "Let There Be Light," was also presented.

* * *

The marriage of Miss Constance M. Otten and **Dr. Jack V. Wallinga** took place in St. John's Lutheran Church at Twin Lakes on March 18. Dr. Wallinga, son of the late Dr. John H. Wallinga of Saint Paul, is a graduate of the University of Minnesota Medical School and is now studying under a fellowship in psychiatry at the University.

Dr. Richard M. Magraw, who quit private practice three years ago to study psychiatry, recently had an article published in the Bulletin of the University of Minnesota Hospitals and Minnesota Medical Foundation. In the article, which was entitled "Psychological Medicine in a General Medical Setting," Dr. Magraw pointed out that the use of psychiatric medicine, or the "human approach," does not require more time than the average practitioner has to spare, and that this "comprehensive approach" makes possible quicker, and in many cases more accurate, diagnosis and treatment.

A graduate of the University of Minnesota Medical School in 1943, Dr. Magraw completed a year of surgical training and then practiced medicine at Two Harbors for two and one-half years. He recently completed a three-year fellowship in psychiatry at the University Hospitals.

* * *

Dr. Arthur H. Wells, Duluth, president of the Minnesota division of the American Cancer Society, discussed recent developments in cancer research at a school for cancer work volunteers in Pine City on March 29.

* * *

Dr. L. G. Smith, Montevideo, announced on March 28 that **Dr. R. E. Risch** of Minneapolis would soon become associated in practice with him and with Dr. M. A. Burns and Dr. Floyd Burns. Dr. Risch, it was stated, would move to Montevideo as soon as he could dispose of his practice in Minneapolis, where he has practiced medicine since his graduation from the University of Minnesota Medical School.

* * *

It was announced on April 11 that **Dr. Henry B. Blumberg,** formerly of Saint Paul, would open offices the following week in Fairmont for the practice of medicine. A graduate of Northwestern University Medical School, Dr. Blumberg joined the Army in 1942 and served both in the South Pacific area and in Europe. Later he spent three years at the Boston City Hospital and the Pratt Diagnostic Center. He then returned to Saint Paul and became affiliated with the Earl Clinic. He has taken postgraduate work at the University of Minnesota.

* * *

Dr. Adrian R. Jensen, Crookston, attended a meeting of the state poliomyelitis planning committee in Minneapolis on March 31. He was appointed a member of the committee by the State Board of Health.

* * *

Three Saint Paul physicians were guest speakers at a meeting of the Saint Paul Surgical Society on March 15. Dr. Abbott Skinner presented a paper on "Perforated Peptic Ulcer." Dr. E. M. Jones discussed the same topic. Dr. Wallace H. Cole spoke on "Intermedullary Fixation of Fractures."

* * *

Among Minnesota physicians participating in the regional meeting of the American College of Sur-

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geons at Winnipeg on April 3 and 4 were three Mayo Clinic staff members: Dr. Joseph M. James, r. Virgil S. Counseller and Dr. Paul R. Lipscomb. r. James spoke on arterial lesions of the extremties; Dr. Counseller conducted a panel discussion on esarian section and uterine prolapse; Dr. Lipscomb poke on stenosing tenosynovitis at the radial styloid rocess and was moderator at a panel discussion on urgery of the hand.

* * *

Dr. Ralph Papermaster, Two Harbors, supervised cancer detection clinic held in Two Harbors on March 18. The clinic was for all of Lake County, which is said to have one of the highest cancer death ates in Minnesota. Fifteen physicians and seventyive volunteer workers helped to conduct the clinic.

* * *

On March 1, **Dr. Reynold A. Jensen,** associate professor of psychiatry and pediatrics at the University of Minnesota, discussed psychosomatic medicine when he spoke at the sixth of a series of medical seminars held in St. Cloud.

* * *

"The Value of Relaxation" was the title of a talk given by **Dr. C. M. Jessico,** Duluth, at the annual meeting of the Duluth Health Council on March 20. The meeting was open to the public.

* * *

The quarterly meeting of the Consultation Committee of the **Minnesota Trudeau Society** was held at Sunnyrest Sanatorium, Crookston, on March 25. Cases from Sunnyrest Sanatorium and from Oakland Park Sanatorium at Thief River Falls were reviewed by the committee.

Members of the committee are Dr. Ejvind Fenger, of Glen Lake Sanatorium, Minneapolis, chairman; Dr. William D. Seybold, Mayo Clinic, Rochester; Dr. S. T. Sandell, of Nopeming Sanatorium, Duluth; Dr. M. M. Williams, of the Minnesota State Sanatorium, Walker; Dr. George C. Roth, of Saint Paul; Dr. H. Falk, of Minneapolis Veterans Hospital, and Dr. R. R. Hendrickson, superintendent of Sunnyrest Sanatorium, Crookston.

* * *

Dr. John Stam, of the Worthington Clinic, discussed the development of eating habits of the pre-school child at a meeting in Brewster on March 28. The meeting was the second of a series for mothers of children of pre-school age.

* * *

Two Minneapolis physicians will present reports at the Sixth International Congress of Pediatrics in Zurich, Switzerland, July 24 to 28. Dr. John M. Adams, associate professor of pediatrics at the University of Minnesota, will discuss the relationship of the common cold in adults to pneumonia in babies. Dr. Leonard A. Titrud will describe the surgical treatment of certain types of epilepsy.

* * *

Dr. Matthew J. Weir, formerly of Mankato, has been commissioned a first lieutenant in the Regular Army Medical Corps. A graduate of the University of Min-

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nesota Medical School in 1948, Dr. Weir interned at Minneapolis General Hospital.

* * *

Minnesota Cancer Detection Center.—Physical abnormalities requiring medical attention were found in more than one-half of the 3,265 examinations conducted in the University of Minnesota's Cancer Detection Center during the first two years of its operation.

Cancer was detected in thirty-four persons—fifteen men and nineteen women. Thirty cases of cancer were diagnosed on the first visit, while four were discovered during a second examination, one year after the first. In the 1,732 examinations (53 per cent) which revealed conditions requiring medical attention, examining physicians found, in addition to cancer, 776 pre-cancerous conditions, 564 benign tumors, and 2,149 instances of other abnormal conditions, non-cancerous but calling for immediate treatment. Most common of the pre-cancerous conditions were rectal polyps, which accounted for 369 of the 776 instances of pre-cancerous lesions.

Of the 3,265 examinations conducted at the center in its first two years, 2,226 were initial examinations and 1,039 were annual check-ups. Slightly more than half of the persons examined were women.

Dr. David State, director of the center, announced at the time the two-year report was released, "Results of our first two years of operation have been better than we anticipated. Apart from the fact that we were able to detect thirty-four cancers, we were able to catch most of them extremely early, and, accordingly, treatment of these tumors was more successful than the average. Without discounting the importance of detecting these cancers, we feel that it was of much more practical value that we found such a large number of pre-cancerous lesions, which are relatively simple to treat."

The cancer detection center is open to Minnesota men and women aged forty-five or over, who are unaware of any cancer symptoms in themselves. Admission is by appointment only, and more than 21,000 applications for appointments have already been received.

* * *

Dr. Mario Fischer, Duluth, St. Louis County health officer, was named a member of a temporary committee to handle preparation of the new St. Louis County infirmary at Virginia. The committee was appointed to function until a county agency could be named to assume charge.

* * *

It was announced on March 30 that **Dr. J. T. Boswell** would move to Wanamingo in July and open offices for the practice of medicine. A graduate of the University of Ohio, Dr. Boswell at the time of the announcement was serving his internship at the U. S. Naval Hospital at Great Lakes, Illinois. Wanamingo has been without the services of a resident physician since last August when Dr. C. N. Rudie moved to St. Peter to become a staff member of the state hospital there.

* * *

Two Saint Paul physicians were speakers at a public meeting in St. Cloud on March 13. **Dr. John F. Briggs,** president of the Minnesota Heart Association, spoke on "Your Heart," and **Dr. Paul C. Benton,** in-

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1. *Withering, W.:* An account of the Foxglove, London, 1785.
2. *Rimmerman, A. B.:* Digilanid and the Therapy of Congestive Heart Disease, Am. J. M. Sc. *209:* 33-41 (Jan.) 1945.

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tructor in child psychology at the University of Minne- ota, discussed "Emotional Problems in Children." The ieeting was sponsored by the St. Cloud Health Council.

* * *

The first of eight **weekly medical seminars** was held i Austin on March 15. Twenty-five physicians from he surrounding area attended the meeting, at which he principal speakers were Dr. George N. Aagaard nd Dr. Richard L. Varco, of the University of Minne- ota.

* * *

One of the speakers at a session of the Duluth and rrowhead Health Day on April 14 was **Dr. Earl E. arrett,** Duluth, who spoke on the topic "The Doc- or."

* * *

Dr. and Mrs. H. O. McPheeters, Minneapolis, spent he month of March vacationing in the West Indies and enezuela. Much of the time was used in visiting hos- itals and medical centers.

* * *

Plans for the establishment of a **rehabilitation linic** in Saint Paul for patients released from mental ospitals were announced by Dr. Ralph Rossen, state ommissioner of mental health, at a joint meeting on arch 14 of the Saint Paul Area Public Health Coun- il and the Ramsey County Citizen's Mental Health Com- ittee. The clinic, he said, would be like the one re- ently set up in Minneapolis. Counselors would help patients get suitable employment, handle difficult relations with employers, check patients' progress and help to prevent the need for readmission to an institution. Said Dr. Rossen, "It is hoped that with careful follow-up programs operated by such clinics, patients could be released from institutions sooner, and consequently more patients could be handled."

* * *

Dr. Christopher Graham, Rochester, celebrated his ninety-fourth birthday anniversary on April 3.

* * *

Announcement was made on March 23 that **Dr. Roberta G. Rice** of Minneapolis would assist Dr. George Friedell in his practice at Ivanhoe while Dr. Friedell was recovering from injuries sustained in an automobile accident.

* * *

An Upper Midwest industrial health conference was held on May 10 in Minneapolis under the joint sponsorship of the Minneapolis Chamber of Commerce and the Hennepin County Medical Society. General chairman of the event was **Dr. Leonard S. Arling,** Minneapolis.

* * *

The newly constructed **Mork Clinic** in Anoka opened its doors to the public on March 27. Construction work was begun last August. The two-story building houses the offices of Dr. Frank E. Mork and Dr. A. Harold Mork, and contains examining rooms, treat-

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Personal Course in General Surgery, two weeks, starting September 25.
Surgery of Colon and Rectum, one week, starting May 15, June 5.
Esophageal Surgery, one week, starting June 5.
Breast and Thyroid Surgery, one week starting June 26.
Thoracic Surgery, one week, starting June 12.
Gallbladder Surgery, ten hours, starting June 19.
Fractures and Traumatic Surgery, two weeks, starting June 12.
Basic Principles in General Surgery, two weeks, starting September 11.
GYNECOLOGY—Intensive Course, two weeks, starting June 19, September 25.
Vaginal Approach to Pelvic Surgery, one week, starting May 15.
OBSTETRICS—Intensive Course, two weeks, starting June 5, September 11.
PEDIATRICS—Personal Course in Cerebral Palsy, two weeks, starting July 31.
Personal Course in Diagnosis and Treatment of Congenital Malformations of the Heart, two weeks, starting June 5.
MEDICINE—Intensive General Course, two weeks, starting October 2.
Electrocardiography and Heart Disease, two weeks, starting July 17.
Liver and Biliary Diseases, one week, starting June 5.
Gastroscopy, two weeks starting May 15, June 12.
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ment rooms, laboratories, x-ray room, business office and a reception room. The clinic has been furnished almost entirely with new equipment.

Also housed in the building are two additional office suites, one of which is occupied by a dentist and the other, on Mondays and Thursdays, by Dr. Donald T. Cundy of Minneapolis, an ophthalmologist.

* * *

A recent addition to the staff of the Willmar State Hospital is **Dr. Kenneth W. Douglas,** formerly of St. Peter, who began his duties at the hospital late in March.

* * *

A new program of protection against **radiation hazards** was started at the University of Minnesota on April 5, when all faculty members working with radioactive materials met to discuss methods of avoiding injury caused by radiation. The protective program, which utilizes four different types of instruments for detecting radioactivity, was developed by a committee headed by Dr. Wallace D. Armstrong, head of physiological chemistry at the University. At the meeting the detection instruments were demonstrated and an eight-page pamphlet prepared by the committee was given to the faculty members.

* * *

Community co-operation has provided Oklee with its first resident physician in more than five years. About two years ago the people of Oklee, a community of 500-plus population, started a campaign to persuade a physician to come to the town. Learning that physicians would be interested if modern working facilities were available, the people formed an organization and began planning the construction of a modern, well-equipped medical clinic.

The result is a $34,000 structure with quarters for a medical office, a dental office and an ambulance garage. The one-story building, of modern design, was opened for public inspection on March 16.

Now occupying the medical office is Dr. F. L. Behling, who moved to Oklee from Moorhead. As for the rest of the building, the Oklee organization is looking for a resident dentist for the town and is hoping that an ambulance for the garage can be acquired soon.

* * *

Dr. Paul M. Smith, Lake Crystal, and his wife and two sons narrowly escaped injury on March 30 when their car was struck on the highway by a heavy truck. The collision ripped off the left side of Dr. Smith's car but injured no one. The truck driver was charged by police with careless driving.

* * *

The American Cancer Society's new motion picture, **"Breast Cancer: The Problem of Early Diagnosis,"** was shown to members of the medical profession in Minneapolis on March 16 and in Saint Paul on March 17. Dr. Robert A. Huseby, William A. O'Brien professor at the University of Minnesota, presented a talk after the showing in Minneapolis. Dr. J. M. Culligan, Saint Paul, introduced the motion picture at the Saint Paul showing.

The film, second in a series of teaching films sponsored by the American Cancer Society and the National Cancer Institute of the U. S. Public Health Service, is now available for showing throughout the state. It can be secured by contacting the Minnesota Division of the American Cancer Society at 622 Commerce Building, Saint Paul.

The new motion picture emphasizes the steps necessary for early diagnosis of breast cancer. Normal breast development, the early signs of cancer, and the complete technique for breast examination are shown in detail.

HOSPITAL NEWS

Louis E. Weiner Memorial Hospital, Marshall.—At a meeting held in the new Louis E. Weiner Memorial Hospital in Marshall on March 27, the physicians of Marshall adopted by-laws, rules and regulations to form the medical staff of the hospital. In an election, Dr. W. W. Yaeger was elected president; Dr. B. C. Ford, vice president, and Dr. K. A. Peterson, secretary.

It was announced that physicians living outside of Marshall would be accepted on the courtesy staff of the hospital through application to the administrator and would be accorded the same privileges of the hospital as the active staff members.

* * *

Fairview Hospital, Minneapolis.—Dr. Silas C. Anderson was elected chief-of-staff at the annual meeting of the medical staff of Fairview Hospital in March. Other new officers include Dr. Myron Lysne, vice chief-of-staff; Dr. Louis J. Roberts, secretary, and Dr. Glenn L. Peterson, treasurer. New members of the executive committee are Dr. J. C. Giere, Dr. R. T. Soderlind, Dr. John Moe, and Dr. D. B. Frane.

* * *

Charles T. Miller Hospital, Saint Paul.—Ground was broken for the six-story addition to the Charles T. Miller Hospital on March 6. The addition is expected to be completed in about eighteen months. It will provide new operating rooms, x-ray and physical therapy departments and an additional 125 beds.

BLUE CROSS—BLUE SHIELD

Both Blue Cross and Blue Shield subscribers used more benefits in February than in January this year. Doctors submitted 747 more claims in February for services to Blue Shield subscribers, and received $34,973 more in Blue Shield payments compared with January. Hospitals reported fewer Blue Cross cases in February, but provided more days of hospital care and received $57,349 more in Blue Cross payments for services to Blue Cross subscribers. Altogether, Blue Shield benefits in February totalled $132,242 and Blue Cross benefits in February totalled $798,441. Blue Shield benefits during the first two months of 1950 amounted to $229,511.62, an increase of 95 per cent over the $117,811.76 paid to doctors during the first two months of 1949.

Of the total 3,322 Blue Shield claims submitted in February, 2,569 were for surgical, medical and obstetrical care given subscribers in hospitals, 737 for care

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given subscribers in doctors' offices, and sixteen for care given subscribers in homes. Participating Blue Shield doctors submitted 3,172 of the total claims, and non-participating doctors submitted 150 claims, of which seventy-one claims were from doctors practicing outside the state of Minnesota.

Surgical cases accounted for 1,971 or 59 per cent of the total claims in February, medical cases for 1,016 or 31 per cent of the total claims, and obstetrical cases for 291 or 10 per cent of the total claims in February. The payment of claims in February were made for services rendered to 230 subscribers prior to November 1, 1949 to 336 subscribers in November, to 713 subscribers in December, to 1,577 subscribers in January and to thirty-one subscribers in February.

One reason for delays in payment is the increasing number of claims presented by medical doctors listing surgery performed but giving no indication that another doctor actually performed the surgery. The Blue Shield payment is naturally paid to the doctor submitting the original claim. When at some later time the surgeon's claim is presented, the Blue Shield office must request a refund from the first doctor paid, since the Blue Shield contract requires that payment be made to the doctor performing the surgery. This problem is called to the attention of the doctors in Minnesota so that these unintentional errors may be avoided and Blue Shield payments can be accurate and prompt.

A report from the Blue Cross Commission, co-ordinating agency for the ninety Blue Cross plans in the United States and Canada, indicated that hospitalization benefits to Blue Cross subscribers during 1949 drew a larger share of the Blue Cross plans yearly income than ever before.

Total income for all Blue Cross plans in 1949 was $388,193,814. Of this amount, hospitals received $327,857,819 or 84.46 per cent for service to Blue Cross members—an increase of almost $57,000,000 over the amount paid hospitals during 1948.

During January and February, 1949, Minnesota Blue Cross payments to hospitals totalled $1,327,287. This year, hospitalization benefits for the first two months totalled $1,529,534.

Enrollment in Minnesota Blue Cross totalled 989,591 as of February 28, 1950, and Blue Shield enrollment totalled 292,455.

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

ULTIPLE SCLEROSIS AND THE DEMYELINATING DISEASES. Proceedings of the Association for Research in Nervous and Mental Diseases, December 10 an 11, 1948. 675 pages. Illus. Price $12.00, cloth. Baltimore: Williams & Wilkins Co., 1950.

ARVEY CUSHING—Surgeon, Author, Artist. Elizabeth H. Thomson. Foreword by John F. Fulton. 347 pages. Illus. Price $4.00, cloth. New York: Henry Schuman, 1950.

OME CONTEMPORARY THINKING ABOUT THE EXCEPTIONAL CHILD. Proceedings of a Special Conference on Education and the Exceptional Child of the Child Research Clinic of the Woods Schools. 64 pages. Langhorne, Pa.: The Woods Schools, 1949.

AW-GE-MAH (Medicine Man). Louis J. Gariepy, M.D. 326 pages. Price $3.00, cloth. St. Paul, Minnesota: Northland Press, 1950.

AY'S MANUAL OF THE DISEASES OF THE EYE FOR STUDENTS AND GENERAL PRACTITIONERS. Revised and edited by Charles A. Perera, M.D., Assistant Clinical Professor, College of Physicians and Surgeons, Columbia University, New York; Associate Attending Ophthalmologist, Presbyterian Hospital, New York. 512 Pages. Illus. $5.00. 20th ed. Baltimore: Williams & Wilkins Co., 1949.

The popularity of this text is attested by the fact nat this is the twentieth edition (the first having apeared in 1900). A total of 378 illustrations, including nirty-two plates with ninety-three colored figures, makes nis the most widely illustrated small work on ophthalnology that has come to my attention. Many of the ntiquated illustrations have been replaced with exellent new ones. The colored plates constitute a valuable tlas of the external diseases of the eye, of the affections f the anterior segment, and of the changes in the ocular undus.

The new and revised material includes the treatment f conjunctivitis, the classification and therapy of disases of the optic nerve, the use of the newer antibiotics, he surgical correction of oculomotor anomalies and the cular manifestation of systemic diseases.

The large amount of material included within the overs of this manual is amazing. It is small wonder hat this text his remained for years the standard manal on diseases of the eye for students and general pracitioners.

Harold J. Rothschild, M.D.

UINIDINE IN DISORDERS OF THE HEART. By Harry Gold, M.D., Professor of Clinical Pharmacology at Cornell University Medical College, Attending-in-Charge of the Cardiovascular Research Unit at the Bethel Israel Hospital, Attending Cardiologist at the Hospital for Joint Diseases, Managing Editor of the Cornell Conferences on Therapy. 115 pages. Price, $2.00. New York: Paul B. Hoeber, Inc., 1950.

"Quinidine in Disorders of the Heart" is a concise, eadable little manual of 100 pages by a physician with vide experience both in pharmacology and clinical nedicine. Indications, dosage, toxic reactions are well resented, and the various arrhythmias are capably lescribed. Case histories enliven the discussion. However, those of us who use Quinidine to prevent or lelay the onset of permanent auricular fibrillation and

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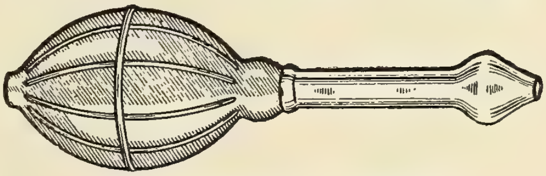

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to prevent ventricular tachycardia and ventricular fibrillation in acute myocardial infarction, will be disappointed in Dr. Gold's treatment of this subject. A separate paragraph might well have been included on contra-indications.

BEN SOMMERS, M.D.

ESSENTIALS OF OBSTETRICAL AND GYNECOLOGY PATHOLOGY. By Robert L. Faulkner, M.D., F.A.C.S., Assistant Professor of Gynecology, The Western Reserve Medical School; Associate Gynecologist, University Hospitals of Cleveland, Ohio, and Marion Douglass, M.D., formerly Assistant Professor of Gynecology, The Western Reserve Medical School. 2d ed. 357 p. Illus. Price $8.75. St. Louis: The C. V. Mosby Co., 1949.

It was a privilege and I derived a great amount of pleasurable reading in reviewing this book. The wealth of fundamental knowledge contained in such a book is invaluable to anyone, and it certainly helped me in my thinking and understanding of the basic problems in obstetrical and gynecological pathology.

The book is well organized and each chapter is devoted to the specific structure being discussed. The first chapter explains the proper methods of obtaining and processing surgical specimens and biopsies so as to facilitate the rendering of a more accurate diagnosis by the pathologist which in turn will aid the gynecologist to a more concise understanding of the problem which confronts him. Succeeding chapters describe the histology, physiology and pathology pertinent to the female anatomy in this order: vulva, vagina, cervix, endometrium, myometrium, fallopian tube, ovary and the pathology relative to pregnancy.

In order to understand more fully the pathological physiology involved each chapter is preceded by a brief, concise, discourse of the physiology, histology and embryology involved, which gives one the basic facts stripped of non-essentials and eliminates dull reading material. There are many illustrations of macroscopic and miscroscopic pathologic specimens interspaced throughout the chapters, plus several color plates.

To criticize the book adversely, I feel that the authors should have included a bibliography. Very often, when investigating a particular problem, valuable leads are obtained from a book such as this which may assist an investigator to find further information utilizing the various indices. Surely, the bibliography which Drs. Faulkner and Douglass possess and incorporated into their text would make the book of inestimable value. I also believe that a chapter on the pathology and pathological physiology of the toxemias of pregnanc should be included and the material organized in th same style as the other chapters in the book.

This text can be highly recommended as a hand reference to anyone interested in gynecological an obstetrical pathology bearing in mind that the book i primarily concerned with the essentials of this subjec matter. For anyone preparing for board examination the book should be a time saver in reviewing basic knowledge in this speciality.

J. F. MELANCON, M.D.

UROLOGICAL SURGERY. By Austin Ingram Dodson, M.D F.A.C.S., Professor of Urology, Medical College of Virginia Urologist to the Hospital Division, Medical College of Vi ginia; Urologist to Crippled Children's Hospital; Urologist t St. Elizabeth's Hospital; Urologist to St. Luke's Hospital an McQuire Clinic. 2d ed. 855 pages. Illus. Price $13.5 St. Louis: C. V. Mosby Co., 1950.

This revised edition is probably the best single reference for open urological procedures. It is not intende as a textbook of urology, although surgical anatomy an basic principles of diagnosis and treatment are reviewe briefly. No attempt is made to cover the field of endoscopic urology. There is an excellent concise chapter o endocrinology as related to the prostate.

Although a number of valuable operative procedure are necessarily omitted, Dr. Dodson's book is a highl useful reference for both the postgraduate student i urology and for those practitioners who do open uro surgery.

MURRAY P. ERSFELD, M.D

REVIEWS OF MEDICAL MOTION PICTURE

The Committee on Medical Motion Pictures of th American Medical Association has completed the secon revised edition of the booklet entitled "Reviews o Medical Motion Pictures." This booklet now contain 225 reviews of medical and health films reviewed i *The Journal AMA* to January 1, 1950. Each film ha been indexed according to subject matter. The purpos of these reviews is to provide a brief description an an evaluation of motion pictures which are available t the medical profession. Each film is reviewed by competent authorities and every effort has been made t publish frank, unbiased comments. Copies are availabl at a cost of 25 cents each from: Order Department American Medical Association, 535 North Dearborn Street, Chicago, 10, Illinois.

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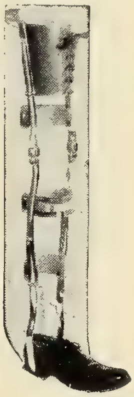

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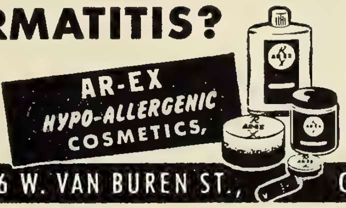

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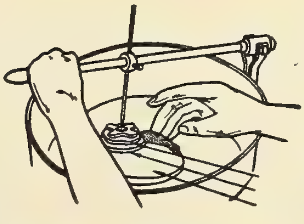

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 33 **June, 1950** **No. 6**

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Entered at the Post Office in Saint Paul as second class mail matter. Accepted for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized July 13, 1918.

MINNESOTA MEDICINE

OFFICIAL JOURNAL OF THE MINNESOTA STATE MEDICAL ASSOCIATION

Published by the Association under the direction of its Editing and Publishing Committee

Office of Minnesota State Medical Association,
493 Lowry Medical Arts Bldg., Saint Paul 2, Minnesota.

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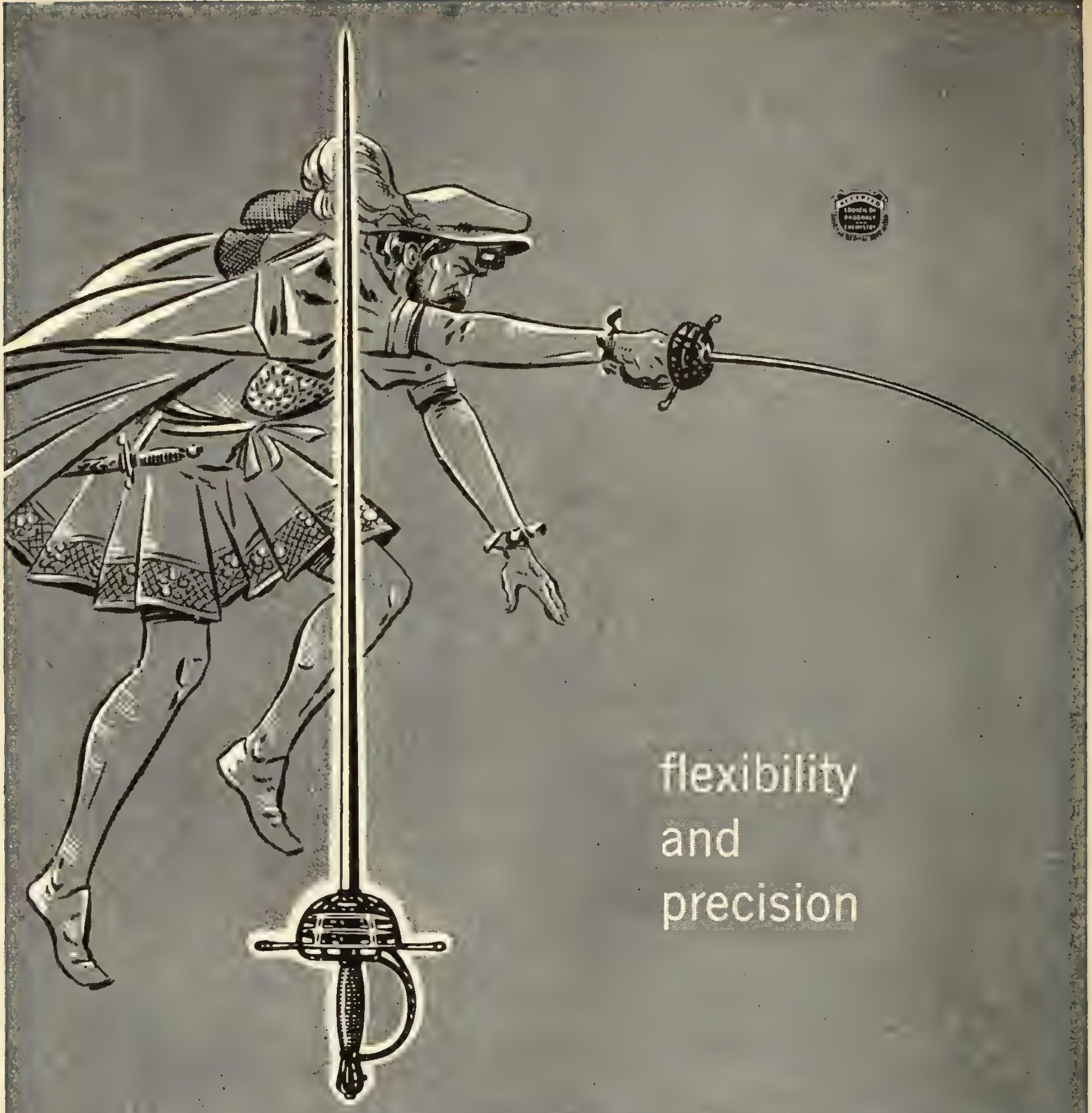

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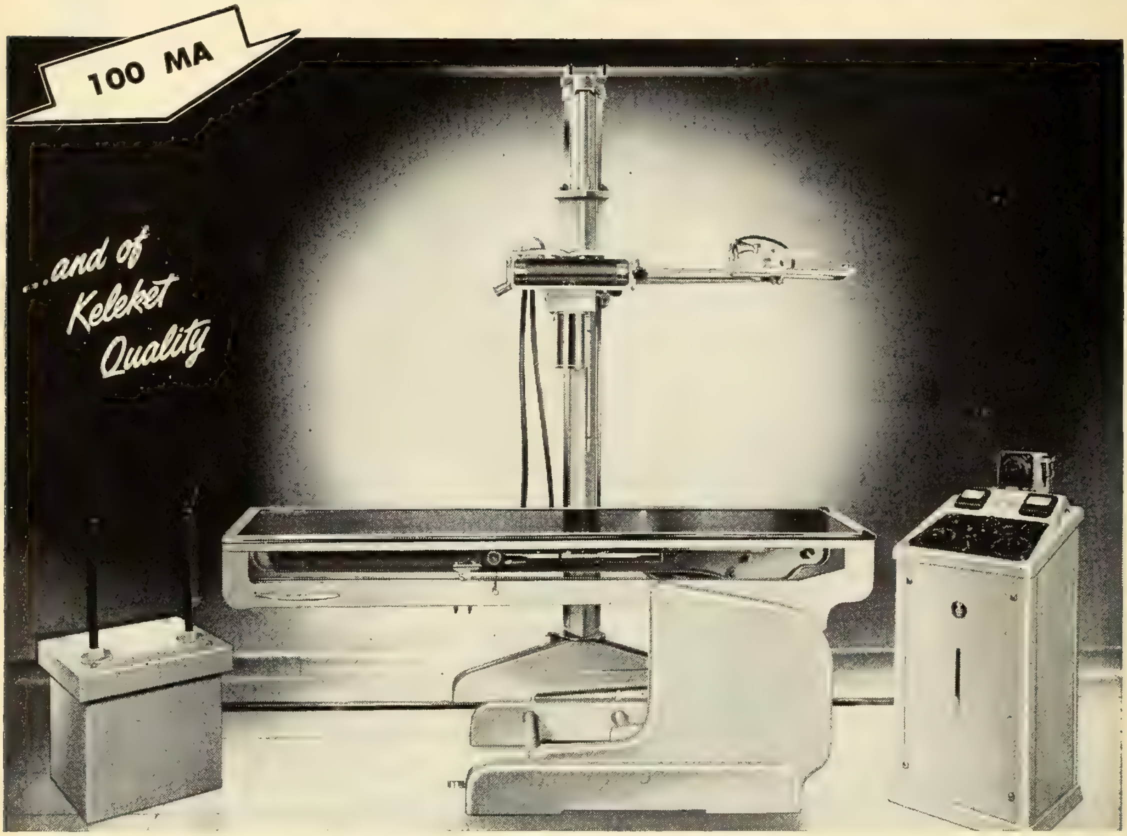

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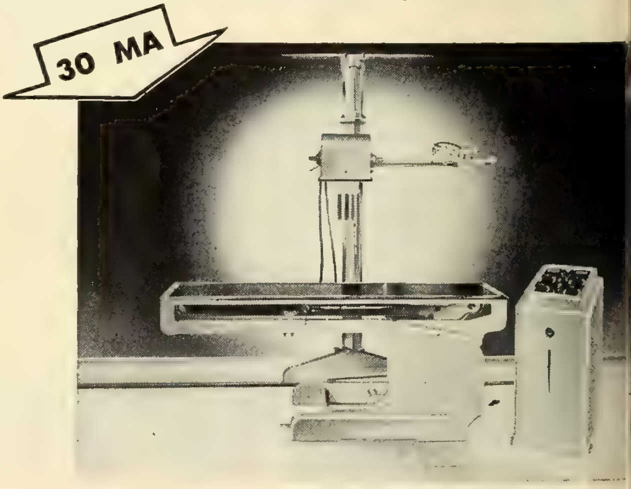

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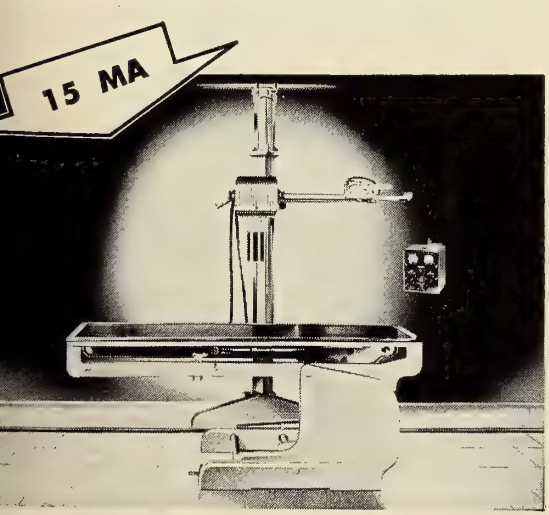

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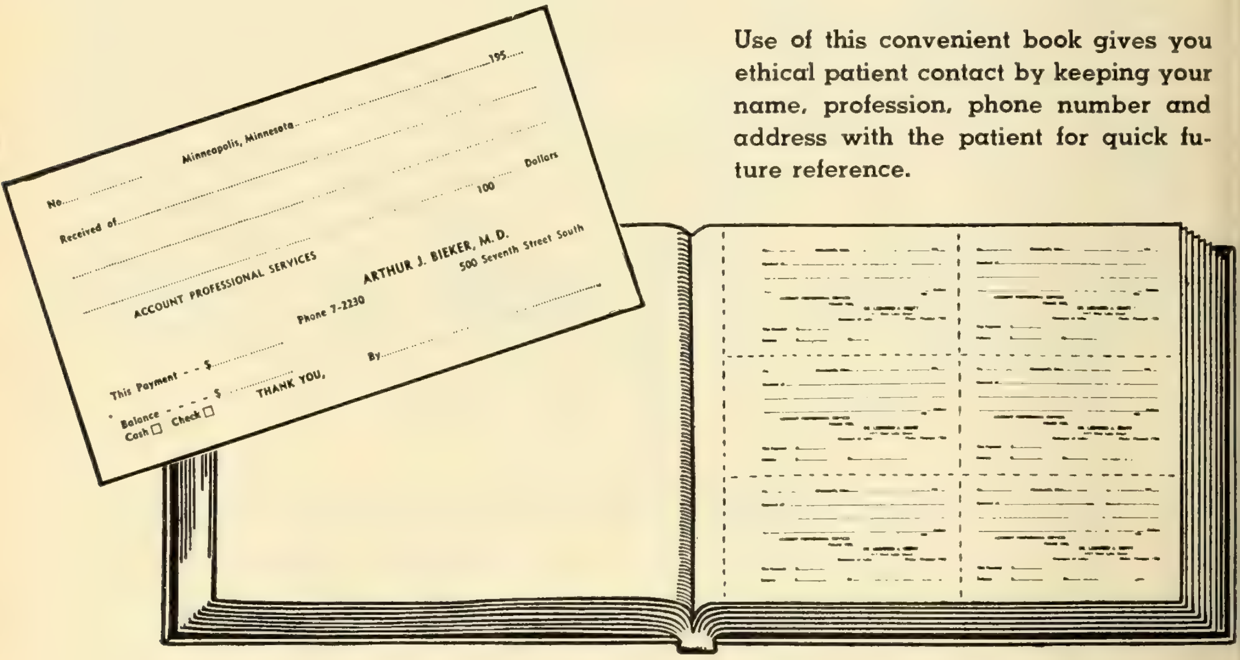

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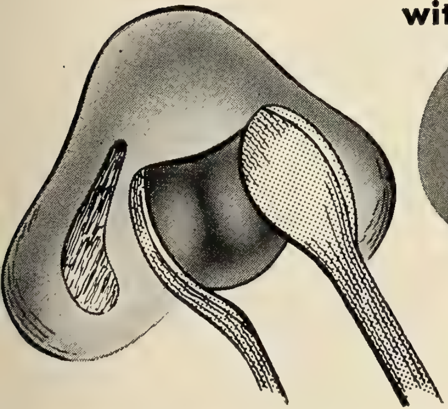

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 33 **June, 1950** **No. 6**

ADVANTAGES AND LIMITATIONS OF THE QUANTITATIVE VDRL SLIDE TEST

ANNE C. KIMBALL, Ph.D., and HENRY BAUER, Ph.D.

Minneapolis, Minnesota

STARTING July 1, 1950, it is planned that blood specimens giving positive VDRL serological slide tests for syphilis will be reported quantitatively. This test has been studied in the Minnesota Department of Health Medical Laboratories since October 1, 1949. The following summary of results is presented as an indication of the value and limitations of this added test procedure.

TABLE I. CORRELATION OF KOLMER-WASSERMANN WITH QUANTITATIVE VDRL SLIDE TEST RESULTS ON 3227 SPECIMENS

VDRL Test		Kolmer-Wassermann Test Result						Total VDRL Tests Positive/Dilution	
		Negative	Doubtful ± or 1+	Positive 2+	Positive 3+	Positive 4+	Anticomplementary	No.	%
Positive in Dilution	1:1024					2	2	4	.12
	1:512					2	1	3	.09
	1:256					19	6	25	.77
	1:128					50	11	61	1.89
	1:64					126	12	138	4.27
	1:32					158	12	170	5.26
	1:16	8	3	3	1	249	5	269	8.33
	1:8	32	10	12	10	298	5	367	11.37
	1:4	87	27	22	24	382	6	548	16.98
	1:2	236	84	32	39	365	11	767	23.78
	Undiluted Only	386	98	67	61	247	16	875	27.15
Total Kolmer Test Results	No.	749	222	136	135	1898	87	3227	100%
	%	23.21	6.88	4.21	4.18	58.82	2.70	100%	

Technique of the Test

The VDRL slide test for syphilis was originally published by the Venereal Disease Research Laboratories of the United States Public Health Service, Staten Island, in 1946[1], after the isolation of cardiolipin from beef heart was published by Pangborn[3] in 1941. The antigen emulsion is prepared with buffered saline and an alcoholic solution of 0.03 per cent cardiolipin and 0.9 per cent cholesterol and sufficient lecithin to give "standard" sensitivity. Basically this antigen is similar to other lipodal antigens used prior to this time. The major advantage is in its reproducibility.

The qualitative tests are performed using 0.05 c.c. undiluted serum and 1 drop (60 drops per 1 c.c.) of antigen emulsion, and the results are read and reported as negative, weakly positive or positive. The quantitative test is done on all specimens giving a positive qualitative test on undiluted serum. Serial twofold dilutions of each specimen are prepared with saline and each one is tested in the same manner as in testing undiluted serum. The highest dilution giving a positive reaction is reported as follows:

From the Minnesota Department of Health, Section of Medical Laboratories.

The authors are indebted to H. G. Irvine, M.D., Acting Director of the Division of Venereal Diseases, Section of Preventable Diseases, for helpful suggestions in preparing this paper.

	Dilution						Report
Spec. No.	1:2	1:4	1:8	1:16	1:32	1:64	
103	W.P.*	Neg	Neg	Neg	Neg	Neg	Positive Undiluted Only
176	Pos	Pos	Pos	Pos	Pos	W.P.*	Positive Diluted 1:32
572	Pos	Pos	W.P.*	W.P.*	Neg	Neg	Positive Diluted 1:4

*Weakly Positive.

The major advantage of such quantitation is that it measures the strength of positivity into a much higher range than the usual gradation of 1+ through 4+ on testing only undiluted serum. For example, in the above table specimens No. 176 and 572 would both have been read positive 4+ by the older gradation method, but the quantitative tests show specimen 176 to be eight times more positive than specimen 572.

During the six-month period October, 1949, through March, 1950, 3227 specimens giving a positive result on undiluted serum with the VDRL slide test have been quantitated. Approximately 200 additional specimens gave positive VDRL slide tests, but there was insufficient serum to perform the quantitative test. We mention this group only to emphasize the importance of submitting a full vial of blood.

In the last two columns of Table I the number and percentage of specimens giving a positive result in the various dilutions is shown. Sixteen hundred and forty-two or 51 per cent of the specimens are positive only undiluted or in dilution 1:2. We can expect to find a considerable number of false positives in this group although many of these are specimens from treated cases of syphilis. No statement can be made in regard to exact specificity since clinical data is not available. The correlation of quantitative results with the Kolmer-Wassermann test results is also shown on Table I. In 993 of these 1642 specimens the Kolmer-Wassermann test also shows some reaction.

In 915 specimens, or 28 per cent, the VDRL tests are positive in dilutions 1:4 and 1:8. False positives will be unusual in this group. The Kolmer test shows some reaction in 785 of these 915 specimens.

In 670 specimens, or 21 per cent, the VDRL is positive in dilutions 1:16 or higher. False positives in this group will be exceedingly rare.

Weakly positive and negative VDRL slide tests are not shown in Table I since the quantitation procedure is not applicable to this group. Such specimens may show a reaction in the Kolmer test.

TABLE II. QUANTITATIVE VDRL SLIDE TESTS

Results on retesting 100 positive specimens.

	Tests done the same day	Second tests done 1 or 2 days later
Exact agreement	71	59
Second test one dilution higher	13	16
Second test one dilution lower	16	21
Second test two dilutions higher	0	1
Second test two dilutions lower	0	3

TABLE III. QUANTITATIVE VDRL SLIDE TESTS

Results on pairs of specimens from 210 individuals collected within one week.

	No.	%
Exact agreement	113	53.8
Second specimen 1 dilution higher	33	15.7
Second specimen 1 dilution lower	54	25.7
Second specimen 2 dilutions higher	7	3.3
Second specimen 2 dilutions lower	2	1.0
Second specimen 3 dilutions higher	1*	0.5

*Early case of syphilis—see text.

Retesting Specimens

Table II is a summary of results on retesting 100 positive specimens the same day, and one or two days later. As shown in the first column, when these specimens were retested the same day there was exact agreement in 71 per cent. Disagreement greater than one dilution was not encountered. Variables which contribute to the 29 per cent disagreement in results are as follows:

1. Variation in reading by two technicians.
2. Deviations from ideal mixing. (It is not practical to use separate pipettes for each dilution.)
3. Variation in serologic pipettes.
4. Variation in time elapsed since inactivation of the serum.

As shown in the second column of Table II, when the retesting was done one or two days later only 59 per cent gave exact agreement, 37 per cent differed by one dilution, and 4 per cent gave results differing by two dilutions. For this group additional variables contributing to disagreement are as follows:

TABLE IV. CORRELATION OF QUANTITATIVE KAHN AND QUANTITATIVE VDRL TESTS ON 628 SPECIMENS

Standard Kahn Result	Serum Dil.	Quanti-tative Kahn Units	VDRL Test Results											Total No.
			Neg.	W.P.	Pos. Undil. Only	Positive in Dilutions								
						1:2	1:4	1:8	1:16	1:32	1:64	1:128	1:256	
Pos 4+	1:150	600									1		1	2
Pos 4+	1:100	400										1	2	3
Pos 4+	1:80	320											1	1
Pos 4+	1:60	240										3	3	6
Pos 4+	1:40	160								1	1		1	3
Pos 4+	1:20	80							1	3	9*	9		22
Pos 4+	1:10	40							14	18*	12	1		45
Pos 4+	1:5	20	1				4	20	19*	5	3			52
Pos 4+	1:2.5	10	1			9	37	36*	17	2				102
Pos 4+	0	4				8	7*	3	1					19
Pos 3+	0	3			7	29	34*	4	2					76
Pos 2+	0	2	1	4	28	25*	9	2						69
Dbt 1+	0	1		8	32*	12	5	1						58
Dbt ±	0	½ Unit		4	9*	2	2							17
Neg	0	Neg	76	40*	29	7	1							153
Number			79	56	105	92	99	66	54	29	26	14	8	628

*Median Titre (see text)

1. Slight variation in the antigen emulsion prepared on different days.
2. Effect of reinactivation on the specimens.

Study of Second Specimens

From 210 individuals we have received two specimens collected within one week. Within seven days we would seldom expect to see significant changes in titre of positivity except in progressing primary syphilis. An analysis of the agreement and disagreement of quantitative tests on these pairs of specimens from 210 individuals is presented in Table III. Exact agreement was obtained in 53.8 per cent. The percentage of specimens showing disagreement to the extent of one dilution or two dilutions is very similar to the results obtained with testing the same specimen on different days, as shown in Table II. From this we conclude that differences of one dilution on two specimens cannot be considered to indicate any significant change in titre of positivity, and in a small percentage of cases even two dilutions may be due to technical variations. In only one pair of specimens was there disagreement in excess of two dilutions. These specimens were from a case of primary syphilis (see Case D, Table VI). The first specimen was positive in dilution 1:8, the second, collected seven days later, was positive in dilution 1:64. A third specimen, received from this individual four months later, gave negative VDRL and Kolmer-Wassermann test results.

Comparison with the Quantitative Kahn

Quantitative Kahn tests and quantitative VDRL slide tests have been done on 628 specimens. In Table IV the number of specimens giving each grade of quantitative Kahn test result is shown, as well as the dilutions positive by the quantitative VDRL slide test. The median titre for the quantitative VDRL test is starred for each type of quantitative Kahn reaction except the five highest titres. Too few specimens fall into these groups to permit designating a median titre. The quantitative VDRL tests gave the median titre indicated or varied only one dilution in 91 per cent of the specimens. Only five specimens varied by more than two dilutions from the median titres indicated. Three of these five specimens were from the same individual and gave quantitative Kahn titres of 20 units, 10 units, and 2 units, respectively. The VDRL, Kolmer-Wassermann, and Hinton tests were all negative on these three specimens. This individual is not a reported case of syphilis, and these are probably false positive Kahns.

Table IV clearly indicates the greater sensitivity of the VDRL test as compared with the Kahn. The dilutions used for the quantitative Kahn are given to bring out this difference. For example, forty-five specimens gave quantitative Kahns of 40 units. These Kahn tests are positive in a serum dilution of 1:10. When these forty-five specimens were tested by the quantitative VDRL test, fourteen were positive in dilution 1:16, eighteen positive in dilution 1:32, twelve in dilution 1:64, and one in dilution 1:128. With the 153 specimens giving negative Kahn tests the VDRL test results were negative in seventy-six, weakly positive in forty, positive "undiluted only" in twenty-nine, positive diluted 1:2 in seven, and positive diluted 1:4 in one.

Taking into consideration the technical varia-

TABLE V. CORRELATION OF SPINAL FLUID TEST RESULTS WITH QUANTITATIVE VDRL SLIDE TEST RESULTS ON BLOODS FROM 168 KNOWN CASES OF SYPHILIS

Spinal Fluid	VDRL Slide Test Results on Blood											Total
	Neg	Wk Pos	Pos Undil. Only	Pos 1:2	Pos 1:4	Pos 1:8	Pos 1:16	Pos 1:32	Pos 1:64	Pos 1:128	Pos 1:256	
1. Kolmer and VDRL positive	1	2	5	7	10	10	7	8	7	1	4	62
2. Kolmer or VDRL test positive*	1	3	3	6	3	2	0	2	4	1	1	26
3. Kolmer and VDRL tests negative	1	3	8	13	23	12	6	6	4	4	0	80

*Kolmer positive, VDRL test negative on 9 specimens.
Kolmer negative, VDRL test positive on 7 specimens.
Kolmer positive, insufficient material for VDRL test on 10 specimens.

tions in test procedure in these two methods of quantitation, the correlation of the results is good. Quantitation by both procedures adds little, if any, significant information.*

Spinal Fluid Test Results Compared with VDRL Blood Test Results

Both spinal fluid and blood specimens have been tested on 168 known cases of syphilis. These results are presented in Table V classified into three groups according to the results on the spinal fluids: (1) Kolmer and VDRL tests both positive; (2) Kolmer or VDRL test positive; and (3) Kolmer and VDRL tests both negative. The quantitative VDRL tests on the blood serum show an equally wide range of titre in all three groups. In group 1 with both tests positive on the spinal fluid, 24 per cent of the blood specimens are positive diluted only 1:2 or show even weaker results. In group 2 with one test positive on the spinal fluid, 32 per cent of the bloods are positive diluted 1:2 or weaker.

Colloidal gold curves have also been done on the majority of these specimens. In group 1 the gold curves were positive on forty-one specimens (thirty-six gave "paretic" type curves) and negative on twenty. Nine positive colloidal gold curves were on spinals from the fifteen persons with low titre (1:2 or less) quantitative tests in the blood. In group 2, positive gold curves were obtained on ten spinal fluids (eight gave "paretic" type curves) and fifteen were negative. Four of the positive gold curves were on spinals from the thirteen persons with low titre (1:2 or less) quantitative tests in the blood. One specimen in group 1 and one in group 2 was insufficient for the gold curve. In the negative group (3) one positive gold curve was obtained; forty-eight gave negative gold curves. This test was not done on the thirty-one remaining specimens.†

The important point brought out by the data in Table V is that, if the blood serum shows only a low titre positivity, this is no assurance that the spinal fluid will be negative, nor is a high titre suggestive that the spinal fluid will be positive. Consequently the quantitation of positivity in blood serum is of no value in predicting the reaction in spinal fluids. Whenever indicated, spinal fluid should be examined regardless of the results on the blood.

Illustrative Cases

In Table VI are given the serologic findings on a few selected individuals. Additional data on these patients follow.

(A) This individual is not syphilitic. The diagnosis was infectious mononucleosis, which frequently gives false positive tests for syphilis. The heterophile antibody titre was positive in dilution 1:640 on the first blood specimen tabulated.

(B) This is not a case of syphilis. The individual was vaccinated for smallpox "shortly" before the collection of the first blood specimen. Several times each year we see false positives following smallpox vaccination, which on occasion show stronger positivity than Case B.

(C) Primary syphilis. Penicillin treatment given in the interval between the two blood specimens.

(D) Primary syphilis. Penicillin, neoarsphenamine, and bismuth administered between the second and third specimens.

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*Quantitative Kahn tests have been done on special request in these laboratories. The quantitative Kahn test is to be discontinued after September 30, 1950. Both quantitative Kahns and VDRL slide tests will be done when the quantitative Kahn is requested during the transition period, July, August, and September, 1950, providing the volume of serum is sufficient. Two full vials will be necessary for the battery of tests (VDRL, Kolmer, Kahn, Hinton, and quantitative Kahn and VDRL).

†The colloidal gold test is done only on request and on those spinal fluid specimens showing a positive serological test for syphilis.

TABLE VI. ILLUSTRATIVE CASES

Patient	Lues	Days after 1st spec	Results on Serological Tests for Syphilis				
			VDRL	Quantitative VDRL	Kolmer	Standard Kahn	Hinton
A	No	0	Pos	1:2	Pos 4+		
		6	Pos	Undil. only	Dbt ±	Neg	Neg
B	No	0	Pos	1:2	Dbt 1+		
		3	Pos	Undil. only	Neg	Pos 3+	Pos 4+
		14	Pos	Undil. only	Neg	Pos 2+	Pos 3+
		34	Neg		Neg		
C	Primary	0	Pos	1:16	Neg	Pos 4+	Pos 4+
		68	W.P.		Neg	Neg	Neg
D	Primary	0	Pos	1:8	Pos 4+		
		7	Pos	1:64	Pos 4+	Pos 4+	Pos 4+
		143	Neg		Neg		
E	Secondary	0	Pos	1:128	Pos 4+		
		6	Pos	1:64	Pos 4+	Pos 4+	Pos 4+
		80	Pos	1:8	Dbt 1+	Pos 2+	Pos 2+
F	Early Latent	0	Pos	1:16	Pos 4+		
		18	Pos	1:8	Pos 4+		
F′	No	0	Pos	1:2	Pos 4+	Pos 3+	Dbt ±
		13	Pos	Undil. only	Pos 4+	Pos 2+	Dbt ±
		21	W.P.		Pos 4+	Neg	Neg
		40	W.P.		Pos 4+	Dbt ±	Dbt ±
		51	Neg		Pos 4+	Neg	Neg
		71	Neg		Neg	Neg	Neg
G	Early Latent	0	Pos	1:4	Dbt 1+	Pos 3+	Pos 4+
		43	Pos	1:2	Pos 4+	Pos 3+	Pos 4+
		127	Pos	1:2	Pos 4+	Pos 3+	Pos 3+
		189	Pos	1:2	Pos 2+	Pos 3+	Pos 4+
H	Cardiovascular	0	Pos	1:2	Pos 4+		
		49	Pos	1:2	Pos 4+		
		60	Pos	1:2	Pos 4+		
		62	Insuff*		Pos 4+*		
I	Secondary With Relapse	0	Pos		Dbt ±		
		5	Pos		Dbt ±	Pos 3+	Pos 4+
		11	Pos		Pos 3+	Pos 4+	Pos 4+
		93	Neg		Neg	Neg	Neg
		160	Neg		Neg		
		279	Neg		Neg		
		366	Pos	1:2	Dbt 1+	Neg	Pos 3+
		476	Pos	1:32	Pos 4+	Pos 4+	Pos 4+
		494	Pos	1:32	Pos 4+	Pos 4+	Insuff.

*Spinal Fluid.

(E) Secondary syphilis. Source of infection to Case C above. Penicillin treatment given in the interval between the second and third specimens.

(F) Early latent syphilis. First specimen collected five days prior to delivery of infant. Syphilis diagnosed and treated two months prior to delivery.

(F′) Infant of Case F. One month old when first blood was submitted. According to our records, no treatment was administered to the infant, and the case has not been reported.

(G) Early latent syphilis was diagnosed in 1943. Irregular and inadequate treatment for several years. Adequate treatment regime in 1947 and 1948, completed nine months prior to the first specimen tabulated. Spinal fluid negative in 1947. No change in positivity in the seven-month period covered. This patient's blood will probably not become negative.

(H) Cardiovascular syphilis. Diagnosed and treated six years ago. Spinal fluid examination requested but not done at that time. Positive spinal fluid collected two days after the third blood specimen tabulated.

(I) Originally reported as secondary syphilis. Adequately treated with penicillin, arsenic and bismuth for eight months. Attending physician evaluates the later change as a relapse.

Discussion

Requesting repeat specimens (two full vials) on all diagnostic problems will be continued. The results on the Kahn and Hinton tests, in addition to the VDRL and Kolmer, will frequently aid in diagnosis or exclusion of syphilis. (See patients A and D in Table VI.)

There is no evidence establishing that the height of titre of any quantitative tests for syphilis correlates directly with clinical activity. The value of the quantitation is that the higher the titre is, the stronger the serological evidence is for supporting a diagnosis. In addition, the change in titre can be noted during treatment which can, on occasion, give an earlier warning of relapse than would be possible with qualitative tests.

Referring to Table I, the greater incidence of anticomplementary Kolmer test results in very high titred specimens is apparent. It is well established that anticomplementary reactions occur frequently in specimens giving very high titred quantitative tests and in contaminated specimens. Also, blood serum from some individuals is anticomplementary because of unknown factors. Because bacterially contaminated specimens are associated with anticomplementary reactions, the quality of any anticomplementary specimen may be questioned. As a result, the two basic recommendations (1) that all positive blood tests be repeated before diagnosis and (2) that bloods be collected with sterile technique, both become even more important when considering an anticomplementary result.

When an anticomplementary result is reported and when serological results are for any reason questionable, it will frequently be necessary to submit several specimens over a period of months, and a spinal fluid, before a sound conclusion can be reached as to diagnosis or exclusion of syphilis.

As is readily understandable, we have no clinical data on a large percentage of patients in this study. We hope that none the less the data here presented will prove valuable. Quantitative VDRL tests have been reported to Dr. F. W. Lynch, Saint Paul, and he is presenting his evaluation of the procedure in this issue.[2]

Summary

Starting July 1, 1950, it is planned to report all positive VRDL slide test results quantitatively. Quantitation has the following advantages:

1. The higher the dilution in which the test is positive, the less is the possibility of a false positive.
2. Changes in titre can be followed during treatment. This is most important in early syphilis.

Limitations:

1. Regardless of the quantitation, all positive tests should be repeated. Two full vials of blood for the "battery of tests" are desirable on second specimens.
2. Variations of one dilution (first specimen positive diluted 1:4, second specimen positive diluted 1:8) have no significance, since such change can be due to several technical variations in the test procedure.
3. Strength of positivity as indicated by the dilution does not correlate with the clinical activity of the infection.
4. Spinal fluid examination should be made whenever indicated, regardless of the quantitative result, since over 25 per cent of patients with positive spinal fluids have low titre positive reactions in the blood (positive diluted 1:2 or weaker.)
5. Approximately 6 per cent of our specimens have been insufficient for quantitation. One full vial (6.0-7.0 c.c.) is requested.

The quantitative Kahn test (done only on special request) will be discontinued on October 1, 1950.

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FALL IN TUBERCULOSIS DEATH RATE

The annual death rate from tuberculosis dropped 10 per cent in 1948 to 30.0 per 100,000 population, Federal Security Administrator Oscar R. Ewing said today. He cited an article, "Tuberculosis Mortality in the U. S. 1948," which appears in the current Tuberculosis Control Issue of *Public Health Reports*, published by the Public Health Service, Federal Security Agency.

The decline in the tuberculosis mortality rate, the article points out, has accelerated during the postwar years. The rate dropped 5 per cent from 1945 to 1946, and 7 per cent from 1946 to 1947.

The tuberculosis death rate for the population as a whole has been steadily declining for the past twenty years, so that the 1948 rate was less than half the 1930 rate, according to the article. The decline is sharper in some sections of the population than in others—sharpest of all in children under fifteen years of age. In persons over sixty-five years of age, on the other hand, the decline has been slow, and indeed in white males over sixty-five the tuberculosis death rate was higher in 1948 than in 1941.

In general, the article points out, the tuberculosis death rates for women have fallen more rapidly than those for men. The 1948 rate for females was about half of that for males. Mortality rates from this disease continue to be more than three times as high for the nonwhite groups as for the white, the article says.

The state with the lowest tuberculosis death rate in 1948 was Iowa with a rate of 9.5 per 100,000 population. The state with the highest rate, Arizona, dropped from 100 in 1947 to 82.4 in 1948.—*Public Health Service* Release April 12, 1950.

THE CLINICAL APPLICATION OF QUANTITATIVE REPORTS OF SEROLOGIC TESTS FOR SYPHILIS

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SINCE the Serologic Laboratories of the Minnesota Department of Health will soon report quantitatively on reactions in serial dilutions of specimens tested with the VDRL antigen, this paper is presented in the hope of familiarizing Minnesota physicians with the expected advantages of such reports. Syphilis is not common in Minnesota but this fortunate fact does not lessen the need for offering these syphilitic patients the best possible care. The discussion is based on the results of studies on specimens submitted to the Minnesota Department of Health from private practice and from Ancker Hospital from October 1, 1949, to April 1, 1950, attempting to evaluate the limitation and advantages of such tests.* Capable clinicians may immediately ask whether these detailed reports may not encourage overdependence upon laboratory procedures and thereby diminish clinical acumen and effort. While this paper points out certain advantages to be gained from quantitative studies, the author wishes first to warn against too great dependence upon tests and his purpose is to assist in their cautious and correct application.

The most clearly evident limitations of quantitative tests are:

1. Quantitative studies do *not* eliminate the possibility of technical or clerical errors and one must not depend on results obtained on a single specimen.
2. Serial dilution of serum does not increase the *specificity* of a serologic reaction.
3. There is no *dependable* relation between the amount of reagin and severity of syphilis or the need for treatment.

Specificity

The VDRL antigen has increased the specificity of serologic tests for syphilis and quantitative reporting† will increase diagnostic accuracy in some cases since reactions occurring at higher dilutions are more likely to be specific than those observed only in undiluted serum. Just as before, in doubtful cases the VDRL report must be correlated with others since the likelihood of a false reaction is increased when there is conflict (e.g., VDRL negative, Kolmer positive, or the reverse). Variations in intensity of reaction may be reported in a series of tests at intervals of one or several weeks. While slight variations may be of no significance,‡ greater ones suggest lack of specificity, and sustained upward trends are likely to be significant of increasing specific activity. Since time to observe the serologic *trend* may be of great help in diagnosis, it is fortunate that in the absence of clinical evidence or spinal fluid changes, there seldom is need for haste. The addition of quantitative study does not change the general principles that through physical examination, accurate personal and familial history, spinal fluid study, and patience are necessary for the accurate diagnosis of syphilis.

> *"The interpretation of serologic tests for syphilis is of paramount importance in the diagnosis of syphilis and the follow-up of treated patients."*
> EVAN W. THOMAS *in*
> *"Syphilis, Its Course and Management."*

In this series diagnostic help from quantitation was obtained in several cases. Diagnosis had long been delayed in one case because of numerous variable and conflicting reports, but after several years a specimen was reported as 4-plus in all tests and VDRL positive in dilution of 1:8, and later at 1:16, the higher dilutions suggesting that the progressive serologic change had been great rather than slight in degree, as might have been suspected if the VDRL test had been reported only as positive.

In another instance a false diagnosis of syphilis may have been averted in the case of a penile lesion closely resembling a chancre. A series of tests was reported as follows:

Kline	2-plus	2-plus	4-plus
VDRL	pos.	pos. undiluted	pos. undiluted

Presented before the Minnesota Academy of Medicine, May 10, 1950, at St. Paul, Minnesota.

*This study was carried out with the generous co-operation of the Medical Laboratories of the Minnesota Department of Health, and consists of clinical observations relating to approximately 4 per cent of the positive serologic reactions studied in detail by Drs. Kimball and Bauer and reported in this issue of MINNESOTA MEDICINE.

†Details regarding the quantitative VDRL technic and method of reporting are discussed by Dr. Kimball.

‡Dr. Kimball's Tables II and III illustrate the variations to be expected in results on repeated testing of single specimens or on repeated specimens.

Too much importance was not placed upon the 4-plus report since the VDRL reaction occurred only in low titre. Only a few days later both tests reverted to negative. (Fortunately the Kolmer reaction had remained negative throughout the period of observation.)

In serial studies of several patients the VDRL reaction ranged from negative to positive in dilution of 1:2 in cases where other tests were reported negative to 4-plus, and no diagnosis of syphilis was made. Dr. Kimball's illustrative cases A and B further demonstrate these points.

Activity of Infection

Rising serologic titres must be appraised as possible evidence of early, untreated syphilis (acquired or congenital). Negative reactions occur during the first four or five weeks of infection, then follows a rather rapidly progressive rise in titre to a peak during the "secondary stage" of the disease, after which the serologic titre decreases and within a year or two becomes fairly stable, at levels which vary greatly from patient to patient and seem to have little or no relation to the severity of the disease. Though the serologic level is not directly related to the activity of the disease, negative serologic reactions are rare in *active* late syphilis. Clinical evidence of previously active inflammation may or may not be accompanied by serologic activity (e.g., cutaneous or osseous scars or inactive—"burned-out"—tabes with residual neurologic changes).

The following examples from this series show how undependable is the titre as an indicator of activity of infection and need for treatment:

Titre	*Nature of the Syphilis*
1:128	old, previously treated for cutaneous gumma.
1:64	old, previously treated slightly
1:64	old, untreated, cardiovascular syphilis.
1:32	late, active cutaneous syphilis.
1:16	late, active neurosyphilis.
1:8	late, persistent spinal fluid changes, recently re-treated.
1:2	late, treated, seroresistance in spinal fluid.
undil.	active interstitial keratitis.

Such examples clearly illustrate that quantitative reports must not be used as direct indications of the necessity for, or the character or amount of, treatment. The data presented by Dr. Kimball in Table 5 (and her Case H) clearly shows a lack of positive correlation between the degree and activity of neurosyphilis (as shown by spinal fluid changes) and the degree of reaction to the VDRL test.

Response to Treatment

The greatest advantage of quantitative serologic study is in the evaluation of results of modern, rapid, intensive therapy for early syphilis. Here one expects a rapid, progressive drop in titre to negativity in one to four months. (When treatment has been instituted before serologic reactions have become positive, or while they are still increasing in intensity, there may be a transitory rise immediately after starting to treat—a "serologic Herxheimer reaction"). Even when treatment has been started as early as one or two months after infection, one will observe some patients whose serologic response progresses steadily to a point just above negativity (e.g., weak positive, or positive undiluted only, or in dilution of 1:2) and then persists at that level, fluctuates slightly, or diminishes very slowly. Treatment has not failed; these patients have had adequate therapy and need not be re-treated. After treatment of early syphilis the blood should be tested monthly for a year, every two or three months the second year and semi-annually thereafter. The spinal fluid must be examined six to twelve months after completion of treatment, and abnormal changes require immediate therapeutic attention.

In this series a serologic Herxheimer reaction was noted in a patient with late congenital syphilis with doubtful serologic reactions, given penicillin therapy because of interstitial keratitis. Before treatment, on two occasions the Kolmer reaction was negative and the VDRL positive undiluted only, but following treatment the Kolmer reaction was doubtful 1 plus-minus and the VDRL positive when diluted 1:2.

In other instances the serologic reaction became less intense following treatment. A woman treated late in pregnancy gave birth to an infant who later developed evidence of osseous syphilis, and serologic reactions of Kline 4-plus, Kolmer 4-plus, VDRL positive in dilution of 1:2. Penicillin therapy was begun five weeks after birth and all the serologic reactions were completely negative three months later. Dr. Kimball's cases C.D. and E. illustrate similar response to treatment.

After rapid intensive treatment for early syphilis seroresistance at relatively high levels is rare (e.g., dilutions of 1:8 or greater). When there is no clinical evidence of active inflammation and the spinal fluid is normal, the significance of such seroresistance is questionable. Perhaps there may be small foci of slowly progressive infection or equally possibly the high level of antigen represents a favorable degree of immunity. At any rate there is little risk if such patients are re-treated after six months and then closely observed but given no therapy thereafter, unless the titre rises further.

The greatest benefit of quantitative tests is the early demonstration of serorelapse or re-infection (illustrated by Dr. Kimball's Case I). Serologically the two are indistinguishable. It must be emphasized that such setbacks are proved only when noted on two or more tests and never on a rise of serologic titre demonstrated on a single specimen. Clinically, the chancre of reinfection *precedes* the rise in titre while the mucocutaneous infectious relapse *follows* serorelapse. Frequently, it is important to distinguish the sequence and this can hardly be done without a series of tests with quantitative reports.

Early latent syphilis may respond less rapidly as in the patient whose reactions at start of therapy were Kline 4-plus, Kolmer 4-plus, VDRL positive 1:16 and were the same one month later. At four months the Kline and Kolmer remained 4-plus, but the VDRL was positive only in 1:8 dilution, offering evidence of some favorable effect from the treatment (See also Dr. Kimball's case F.)

In a patient with previously treated asymptomatic neurosyphilis the giving of penicillin failed to modify a VDRL positive reaction at 1:8 dilution. However, in clinically progressively active neurosyphilis similar treatment was followed by a change from VDRL positive at 1:16 to positive only when undiluted. (The Kolmer reaction remained 4-plus and the Kline changed from 4-plus to 3-plus).

Conclusions

Serologic study is increasingly important in syphilis, with quantitative reports offering certain advantages, which have been illustrated by examples selected from reports on a recently observed series of patients.

1. With reference to the recognition of false reactions, positivity in higher dilutions increases the likelihood that the reaction is specific.

2. Steadily rising titres may be demonstrated in early, acquired syphilis and in early, congenital syphilis (regardless of whether treatment was given the mother during pregnancy).

3. Transitory increase in titer may be found immediately after the institution of treatment (serologic Herxheimer reaction).

4. Falling titres are expected as a result of treatment, especially after modern intensive treatment for early syphilis. The most significant application of quantitative reports occurs in early syphilis with an initially favorable serologic response to treatment but later showing progressive increases in titre (serorelapse). Recognition of this serologic change allows institution of retreatment before clinical, infectious relapse exerts its disastrous influences on patient, family or other persons.

5. Quantitative reports are of considerably less significance in all other circumstances and the clinician must not base decisions on insignificant changes. It must be particularly remembered, for example, that positive in 1:64 dilution does not mean "twice as much syphilis" as in 1:32 dilution, but only that one more dilution of the serum allowed demonstration of a positive reaction which may have been due to technical error, extrinsic changes after collection of the serum, or normal and natural variation in the serum content of syphilitic reagin, without significance on the ultimate course of the disease.

6. It may be pertinent to point out a sequence not observed in this series. When gonorrhea and syphilis are acquired simultaneously, the former is often treated by penicillin before the latter is serologically or clinically demonstrable. The syphilitic infection may be aborted, masked or delayed in its appearance but frequently repeated serologic tests will aid in its early recognition and rising quantitative titers have obvious significance.

Health education and sanatorium treatment are our two greatest weapons in fighting tuberculosis. We must remember that each patient with active tuberculosis presents a medical problem, a social and welfare problem, an economic problem and, let us never forget, a public health problem.—R. D. Johnson, M.D., *Bull. Nat. Tuber. A.*, Jan., 1950.

PROGRESS IN MATERNAL AND INFANT HEALTH IN MINNESOTA

A Statistical Study of the Decade 1939-1949

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Maternal Mortality

NATIONALLY, during the past decade the maternal mortality rate has dropped from 4 per 1,000 live births in 1939 to approximately 1 per 1,000 in 1949, a reduction of 75 per cent. In Minnesota the 1939 maternal mortality rate of 2.7 decreased to 0.7 per 1,000 live births in 1949, a similar reduction of 74 per cent. This period included the war years with their rising birth rates and reduced medical and nursing personnel. During the past five years, 1945-1949 inclusive, there was a reduction of 50 per cent, from 1.4 to 0.7 per 1,000 live births.

In 1947, at the peak of our birth rate (75,468 live births), Minnesota's mortality rate dropped to a new United States low of 0.6 per 1,000 live births. While we may well be proud of this accomplishment, which appears to have brought us to an almost irreducible minimum, it is apparent that a still greater reduction is possible when we consider that Oregon reduced its rate to a new national low of 0.4 per 1,000 live births in 1948.

The possibility of further reduction in maternal mortality is also indicated by a preliminary study of the recent EMIC program in Minnesota. During the four full years of the program, 1944-1947, a total of 18,457 live births occurred, with a maternal mortality rate of 0.7 per 1,000 live births. During this same period, 232,207 live births occurred in Minnesota outside the program, with a mortality rate of 1.1 per 1,000 live births, a very significant difference of 36 per cent. It should be noted, however, that the live births in the EMIC program constituted only 7 per cent of the total live births in the state during the four years mentioned. No data are available in our records as to parity of the mother. A preponderance of mothers were, however, in the safest age group of fifteen through twenty-nine years (88 per cent in contrast to the usual state proportion of only about 68 per cent), and the group was a more favored one economically, since medical and hospital care were provided for the asking. Nevertheless, the value of adequate and competent prenatal care, good obstetrical and postpartum care, hospitalization, consultation, and the use of blood and antibiotics, as well as public health programs, cannot be overlooked.

Because of the small number of maternal deaths in each county, there may be quite marked variations in rates from year to year. For this reason, maps were prepared for five-year periods. Map 1 includes all maternal deaths from 1935 through 1939, by counties. Map 2 includes deaths for 1945 through 1949. These maps show five years of recorded maternal deaths rather than the usual resident figures, in order to allocate deaths to the county of occurrence rather than the county where the prospective mother was given prenatal care. It is realized that this approach may influence rates adversely in some counties, but it may also indicate the areas where periodic study of their own maternal problems may be of value to communities in reducing preventable deaths. A comparison between maps 1 and 2 provides a graphic presentation of the improvement in maternal mortality during the period covered.

The state maternal death rate for the five-year period 1935-1939 was 3.5 per 1,000 live births. Twenty counties had rates less than 2.0; forty-three had rates between 2.0 and 4.0; twenty-four had rates over 4.0. Ten years later, in the five-year period of 1945-1949, rates were strikingly lower. The state maternal deaths rate was 0.85 per 1,000 live births. Eighty-one counties had rates less than 2.0; only five had rates between 2.0 and 3.9; only one county had a rate of 4.0 (5.3, to be exact).

The chief causes of maternal deaths are infection, toxemia, and hemorrhage. Table I shows the changes in percentage of deaths due to these causes during the ten-year interval under discussion.

In 1939, thirty-two (24 per cent) of the 136 maternal deaths were due to infection; twenty-six (19 per cent) to toxemia and a similar number to hemorrhage; and fifty-two (38 per cent) to other causes. In 1949, fifteen of the fifty-four maternal

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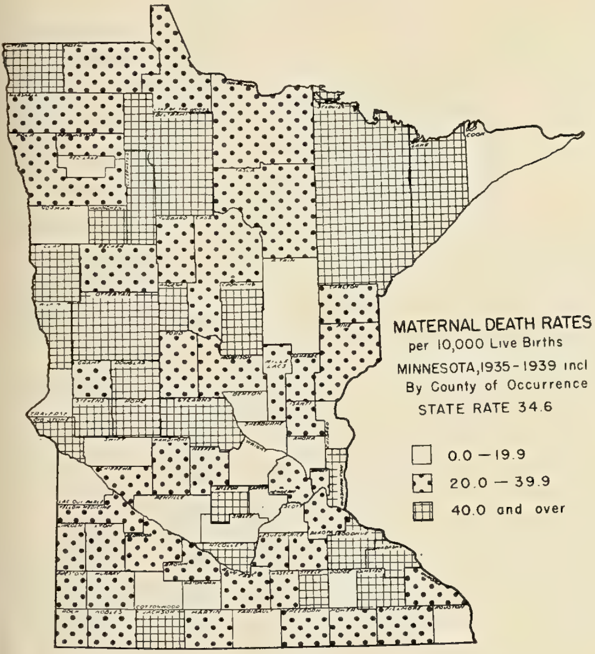
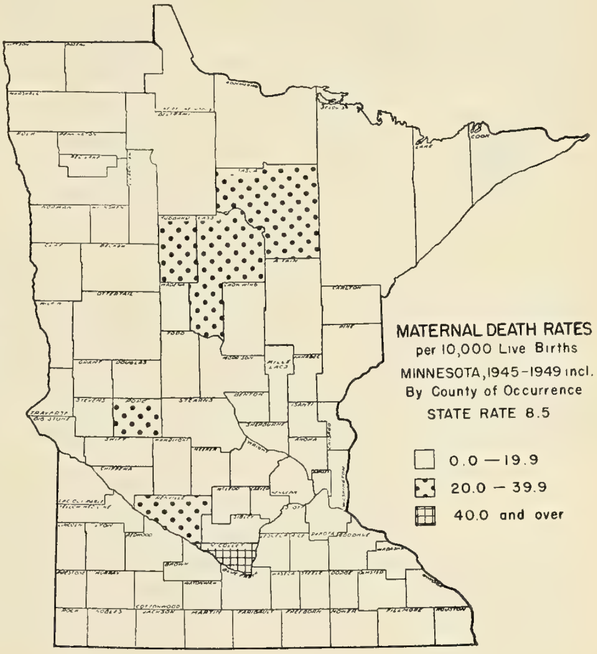
deaths were due to infection (28 per cent), an increase of 4 per cent over the 1939 figures. Toxemia caused eleven deaths (20 per cent); hemorrhage was responsible for ten deaths (18.5 per cent); and eighteen (33 per cent) were due to other causes. From 1939 to 1949, there was a 74 per cent reduction in all causes; death from infection decreased 65 per cent; the other causes of maternal deaths decreased approximately 75 per cent.

The decrease in mortality for the three main causes of maternal deaths has undoubtedly been due to a number of interrelated factors. These include better obstetrical practice, more extensive and more adequate prenatal care, early transfusions, sulfonamides and antibiotics, increased hospitalization (more than 97 per cent in Minnesota), improved hospitalization facilities, and an increasing awareness by the public of the importance of adequate care, which has been promoted through public health education.


MATERNAL DEATH RATES
per 10,000 Live Births
MINNESOTA, 1935-1939 incl
By County of Occurrence
STATE RATE 34.6
☐ 0.0 — 19.9
⁙ 20.0 — 39.9
▦ 40.0 and over

Map 1.


MATERNAL DEATH RATES
per 10,000 Live Births
MINNESOTA, 1945-1949 incl.
By County of Occurrence
STATE RATE 8.5
☐ 0.0 — 19.9
⁙ 20.0 — 39.9
▦ 40.0 and over

Map 2.

TABLE I. MATERNAL DEATHS BY CAUSES AND PER CENT OF CHANGE PER 10,000 LIVE BIRTHS

Minnesota, 1949 and 1939

Causes	Number		Rates		Per Cent of Change
	1949	1939	1949	1939	
All causes	54	136	7.0	27.0	–74
Infection	15	32	2.0	6.3	–65
Toxemia	11	26	1.4	5.2	–73
Hemorrhage	10	26	1.3	5.2	–75
All others	18	52	2.3	10.3	–78

During the period from July 1, 1941 through June 30, 1942, the maternal mortality committee of the Minnesota State Medical Association in co-operation with the Minnesota Department of Health conducted an intensive study of the 112 maternal deaths that occurred in that period. In its report the committee pointed out the extent to which the physician was responsible for maternal deaths, as well as the importance of adequate prenatal care. It is felt that the study was a significant factor in the subsequent reduction of maternal mortality in this state. The Council of the Minnesota State Medical Association has approved a similar study by its maternal health committee for the year of 1950 in an effort to reduce maternal mortality still further.

The largest number of births occurred in the age groups twenty to twenty-four and twenty-five to twenty-nine. These made up 59 per cent of the total in 1939 and 61 per cent of the 1947 total (Table II). Risks in childbearing were low-

TABLE II. MATERNAL MORTALITY BY AGE GROUPS

Minnesota, 1947 and 1939

Age at Death	Live Births 1947*	Live Births 1939	Maternal Deaths 1947	Maternal Deaths 1939	Rates per 10,000 Live Births 1947	Rates per 10,000 Live Births 1939	Per Cent of Change
TOTAL	75,577	50,237	47	136	6.0	27.0	—78
10-14 yrs.	25	13					
15-19 "	5,325	3,876	1	7	1.9	18.1	—89
20-24 "	23,662	15,107	11	20	4.7	13.2	—64
25-29 "	22,444	14,446	9	32	4.0	22.1	—82
30-34 "	14,480	9,541	3	31	2.1	32.5	—66
35-39 "	7,373	5,255	16	28	21.7	53.3	—59
40-44 "	2,044	1,832	7	15	34.2	81.9	—58
45-49 "	127	158	0	3	...	189.9	—100
50 and Over	15	3					
Not Stated	82	6					

*Maternal age groups for 1948 and 1949 are not yet available.

TABLE III. LIVE BIRTHS, INFANT DEATHS, AND STILLBIRTHS

Minnesota, 1949 and 1939

	Number 1949	Number 1939	Per Cent of Change	Rate per 1,000 l.b. 1949	Rate per 1,000 l.b. 1939	Per Cent of Change
Live Births	73,627	50,237	+47			
Infant Deaths	1,922	1,798	+7	26.1	35.8	—27
Stillbirths	1,215	1,217	0	16.4	24.2	—32

TABLE IV. TOTAL MINNESOTA AND INDIAN LIVE BIRTHS AND INFANT DEATHS

Minnesota, 1939 and 1949

Year	Live Births Minnesota No.	Live Births Indian No.	Infant Deaths Minnesota No.	Infant Deaths Minnesota Rate/1,000 l.b.	Indian No.	Indian Rate/1,000 l.b.
1939	50,228	537	1,798	35.8	22	41.4
1949	73,627	574	1,922	26.1	32	55.7

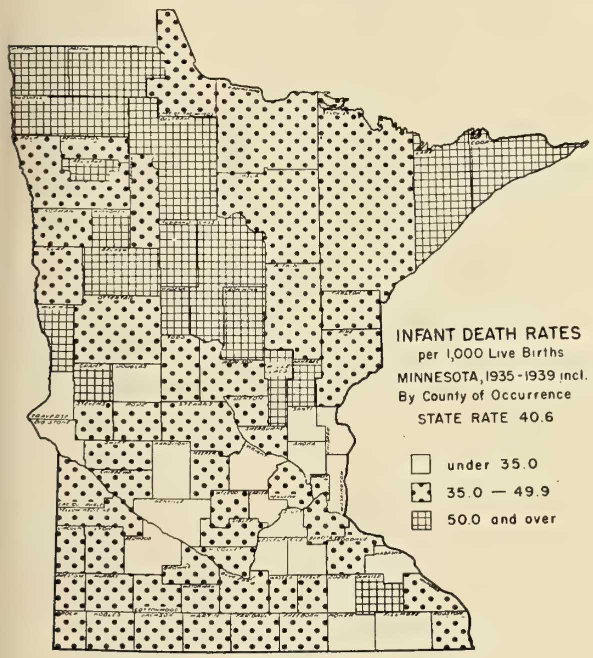
est in the age group twenty to twenty-four in 1939 with a mortality rate of 13.2 per 10,000 live births. For mothers fifteen to nineteen years old and twenty-five to twenty-nine years old the death rates were below those for all ages. Among mothers thirty years of age and over these rates increased in each succeeding age group, with a peak of 189.9 per 10,000 live births among mothers in the forty-five to forty-nine year group.

In 1947 the entire group of mothers aged fifteen to thirty-four years had a mortality rate of 4.7 or less, with a marked rise in the thirty-five to forty-four year group. The highest mortality occurred in the forty to forty-four year group (34.2 per 10,000). The lowest rate of 1.9 was in the fifteen to nineteen year age group. In the thirty to thirty-four year age group it was 2.1 per 10,000 live births. A comparison of maternal deaths in 1939 and 1947 shows that the greatest reduction took place in the fifteen to nineteen age group, where there was a decrease of 89 per cent. In the twenty-five to twenty-nine year age group the reduction was 82 per cent. A 66 per cent decrease occurred in the thirty to thirty-four year age group and a 64 per cent drop in the twenty to twenty-four year group. There was a 59 per cent decrease in the thirty-five to thirty-nine year group and a 57 per cent decrease in the forty to forty-four year group. No deaths occurred between forty-five and fifty years, although this group had the highest mortality rate in 1939. Interestingly enough, the safest childbearing age groups were fifteen to nineteen and thirty to thirty-four in 1947 instead of the usual twenty to twenty-four year age group.

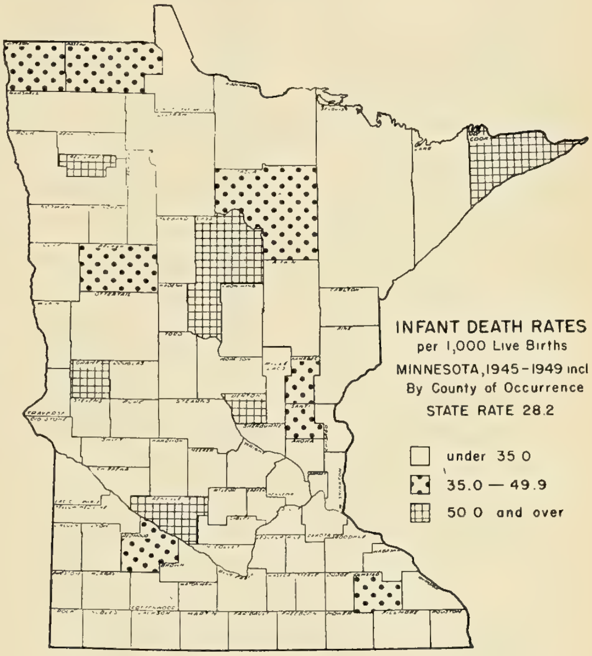
Infant Mortality

(Deaths Under One Year of Age)

In 1939, a total of 1,798 infants died before reaching their first birthday. In 1949, the number increased to 1,922. But this 7 per cent increase in deaths was accompanied by a 47 per cent increase in live births during the decade. The infant mortality rate, however, decreased from 35.8 to 26.1 per 1,000 live births—a reduction of 27 per cent (Table III). Incidentally, infant deaths (under one year of age) constitute from 70 to 75 per cent of all deaths under the age of fifteen in Minnesota. The number of stillbirths has remained about the same, but there has been a substantial reduction in the rate from 24.2 per 1,000 live births in 1939 to 16.4 in 1949, a 32 per cent decrease. The stillbirth rate has actually decreased 5 per cent more than the infant mortality rate.



Map 3.



Map 4.

A comparison of infant death rates by county of occurrence during 1935-1939 (Map 3) with the rates for 1945-1949 (Map 4) graphically illustrates the reduction in infant mortality during this decade. In the five-year period 1935-1939, the state rate was 40.6 per 1,000 live births. Nineteen counties had rates below thirty-five. Fifty-two had rates between thirty-five and fifty; sixteen had rates of fifty and over. Ten years later, during the period 1945-1949, the state rate decreased to 28.2. Seventy-three counties had rates less than thirty-five; eight counties had rates between thirty-five and 49.9; and only six had rates of fifty and over per 1,000 live births.

The non-white population in Minnesota constitutes less than 1 per cent of the total state population. There are approximately 14,000 Indians, constituting about 0.5 per cent of the population, a small number of Negroes, and comparatively few Mexicans, Chinese, and Japanese. The 1949 infant death rate among our Indians was more than twice as great as the overall state rate—55.7 in contrast with 26.1 per 1,000 live births (Table IV). The Indian rate increased more than one-third in 1949 over that of 1939. The high incidence of communicable disease among the Indians undoubtedly influences the infant death rate materially. Another factor is prematurity. While prematurity was the eighth leading cause of death in Minnesota in 1949, it was the sixth leading cause among the Indians.

It should be pointed out that the rates in the Indian group are less stable, since they are based on a relatively small number of mothers. Since the Indian population constitutes less than 0.5 per cent of the state population, such rates have no real significance and do not materially increase the state rate. There are, however, serious health problems in the Indian population.

The causes of infant deaths in 1939 and 1949 are shown in Table V. The four leading causes of death constituted over 75 per cent of all deaths during the first year of life in both 1949 and 1939. The leading cause was premature birth, which was responsible for more than one-third of all deaths in both 1949 (37.4 per cent) and 1939 (35.7 per cent). Congenital malformations were responsible for almost one-fifth of all deaths in infancy (19.4 per cent) in 1949, and one in every twelve deaths in 1939 (12.7 per cent). The third leading cause of death was birth injuries, and pneumonia and influenza were fourth.

The relative importance of the causes of death and the percentage of change during the past ten years is brought out more clearly when it is related to the number of live births. This is the

TABLE V. CAUSES OF DEATH IN THE FIRST YEAR OF LIFE
Minnesota, 1949 and 1939

	Deaths in the first year of life					
	Number		Rate /1,000 l.b.		% Distribution	
Cause of Dealth	1949	1939	1949	1939	1949	1939
All Causes	1,922	1,798	26.1	35.8	100.0%	100.0%
Premature birth	718	640	9.8	12.7	37.4	35.6
Congenital malformations	372	229	5.1	4.6	19.4	12.7
Birth injuries	245	259	3.3	5.2	12.7	14.4
Pneumonia and influenza	189	223	2.5	4.4	9.8	12.4
Congenital debility and other disorders of early life	169	127	2.3	2.5	8.8	7.1
External causes	65	35	0.9	0.7	3.4	1.9
Diarrhea and enteritis	51	70	0.7	1.4	2.6	3.9
Acute infectious diseases	5	18	0.07	0.4	0.3	1.0
Other causes	108	197	..	..	5.6	11.0

TABLE VI. INFANT, NEONATAL AND ONE MONTH-ONE YEAR MORTALITY
Minnesota, 1949 and 1939

	Number		Rate per 1,000 l.b.		Per Cent of Change
	1949	1939	1949	1939	
Infant deaths	1,922	1,798	26.1	35.8	—27
Neonatal deaths	1,440	1,258	19.5	25.0	—22
1 mo.-1 yr.	482	542	6.6	10.8	—39

TABLE VII. DEATHS UNDER ONE YEAR BY AGE PERIODS WITH PERCENTAGE OF DISTRIBUTION
Minnesota, 1949 and 1939

Age at death	1949	1939	% Change
Under 1 day	37.1%	38.7%	—4
1 day to 1 week	28.7%	21.7%	+32
1 week to 1 month	9.1%	9.5%	—4
Under 1 month	74.9%	69.9%	+7
1 month to 1 year	25.1%	30.1%	—16

TABLE VIII. NEONATAL DEATHS FOR SELECTED CAUSES BY PERCENTAGE OF DISTRIBUTION
Minnesota, 1949 and 1939

	Deaths		Per Cent of Distribution	
	1949	1939	1949	1939
Total	1,440	1,258	100.0%	100.0%
Prematurity	707	625	49.1	49.7
Congenital malfor.	245	143	17.0	11.4
Birth injuries	242	257	16.8	20.4
Cong. debility and other diseases of early infancy	156	112	10.8	8.9
Pneumonia & influ.	40	46	2.8	3.6
Diarrhea & enteritis	15	8	1.0	0.6
External causes	14	16	1.0	1.3
Other causes	21	51	1.5	4.1

comparison of the death rate for selected causes per 1,000 live births. The 1939 death rate of 12.7 per 1,000 live births for premature births, the leading cause of death, decreased to 9.8, a reduction of 23 per cent. The rate for congenital malformation, the second leading cause, increased 11 per cent. It was the tenth leading cause of death in both 1948 and 1949. The relationship of German measles in the first trimester of pregnancy to the development of congenital malformations deserves serious consideration. A preliminary study of mortality in Minnesota due to congenital malformations, however, has shown no significant variation in relation to the incidence of German measles.

Deaths from injury at birth, the third leading cause, decreased 37 per cent. This fact would indicate better trained physicians and more competent obstetrical care. Pneumonia and influenza, the fourth leading cause of death, were responsible for 43 per cent fewer deaths. This reduction was due, no doubt, to the use of sulfonamides and antibiotics. Among other relatively less important causes of infant mortality, diarrhea and enteritis showed a reduction of 50 per cent, and deaths due to acute infectious diseases showed an even greater reduction of over 80 per cent. On the other hand, accidental deaths in this early age group increased 29 per cent in the past decade.

The greatest mortality occurs during the first thirty days of life—the so-called neonatal period—and this period shows the least reduction from 1939 to 1949. The infant mortality rate in that period decreased 27 per cent, the neonatal mortality decreased 22 per cent, but the rate for the age group from one month to one year decreased 39 per cent, almost double the neonatal rate reduction (Table VI). It is in the neonatal period that our serious problem lies. Incidentally, there are as many stillbirths as there are neonatal deaths. This is another problem of great concern and is closely associated with neonatal mortality.

TABLE IX. PERCENTAGE DISTRIBUTION OF INFANT DEATHS BY CAUSES

Minnesota, 1949 and 1939

	Prematurity		Other prenatal and natal causes		All Others	
	1949	1939	1949	1939	1949	1939
Under 1 Year	37.4	35.6	40.9	34.2	21.7	30.2
Under 1 Month	49.0	50.6	33.3	31.4	17.7	18.0
Under 1 Week	53.0	54.4	32.6	33.0	14.4	12.6
Under 1 Day	57.7	62.3	32.5	29.3	9.8	8.4

In 1939, 70 per cent of all infant deaths occurred during the neonatal period, with more than half this number occurring under one day of life (38.7 per cent). A total of 21.7 per cent died between one day and one week, and 9.5 per cent died between one week and one month (Table VII). In 1949, there was an increase in the deaths during the neonatal period to 75 per cent with a marked increase occurring in the age group one day to one week. These deaths were due chiefly to prematurity. Only 25 per cent of all infant deaths occurred between one month and one year but this age group showed the greatest reduction.

The chief causes of neonatal deaths are the same as the infant deaths except that prematurity is now responsible for one-half instead of only one-third of all deaths during the first thirty days of life, both in 1949 and 1939 (Table VIII). Congenital malformations and birth injuries make up one-third of the deaths in this period, with an increase in malformations but a decrease in birth injuries in 1949.

The percentage of deaths due to prematurity and other prenatal and natal causes increases progressively from those occurring in the group "under one year" (78.3 per cent) in 1949 (Table IX) to the highest percentage in the group "under one day" (90.2 per cent). A similar progressive increase occurred in 1939.

A Program for Further Reduction of Maternal and Infant Deaths

1. Further reduction in maternal mortality requires:
    (a.) Continued emphasis on competent obstetrical care.
    (b.) More extensive and more adequate prenatal care which must include good nutrition practices.
    (c.) Modern hospital facilities with adequately trained personnel.
    (d.) Periodic surveys of maternal mortality to determine causes of, and responsibility for, such deaths. These findings will be utilized by medical societies, hospital staffs, and teaching institutions for undergraduate and postgraduate instruction in the further reduction of preventable maternal deaths.
2. A consideration of infant mortality leads to one of the most important problems in preventive medicine; namely, a reduction in the number of deaths during the prenatal and neonatal periods which, of course, include stillbirths.
    (a.) A study of infant deaths, perhaps limited to the neonatal period, similar to the survey now being carried out on maternal mortality by the State Medical Association, may be helpful in reducing infant mortality by emphasizing the problems requiring more concerted attention.
    (b.) Consideration of the problems of prematurity in developing a statewide program to reduce the mortality from this leading cause of infant deaths.
    (c.) Study of the relationship of viral diseases and various dietary factors during pregnancy; improved surgical skill and pediatric care to a possible reduction in mortality due to congenital malformations.
    (d.) Decrease in birth injuries by competent obstetrical care.
    (e.) Increased use of the newer antibiotics in pneumonia.
    (f.) Refresher courses in obstetrics and pediatrics at the Center for Continuation Study and/or regional seminars.
    (g.) Modern hospital facilities in rural areas, adequate pediatric nursing, con-

(Continued on Page 651)

SOLITARY PYOGENIC LIVER ABSCESS

Review of Literature and Report of Case

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and
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ABSCESSES of the liver may be classified into two main groups: (1) amoebic, which are usually single and which are associated with intestinal amebiasis, and (2) pyogenic. The latter are single or multiple and are usually due to: (1) infection in areas drained by the portal system; (2) spread from contiguous structures, e.g., acute cholecystitis, gastric or duodenal ulceration, or subphrenic space infection; (3) trauma by penetration from without or by infection in a hematoma with organisms already present in the liver; and (4) blood-borne infections via the hepatic arteries.

Some authors make no attempt to separate multiple from single liver abscesses but most feel that such a distinction is important, mainly on the basis of the prognosis and the therapy of this condition. Rothenberg and Linder, in reporting twenty-four cases of solitary pyogenic abscesses, expressed the conviction that the single liver abscess is most often of unknown or doubtful etiology, usually cannot be proven of portal vein origin, and only rarely is associated with pylephlebitis or portal vein thrombosis.

Some authors such as Ochsner, DeBakey and Murray do not separate pyogenic abscesses into two such groups in their analysis of forty-seven personal and 139 collected cases of pyogenic abscess of the liver. Yet they do state that from the prognostic and therapeutic standpoints it is important to make this differentiation if possible.

It is also extremely important to differentiate if possible the pyogenic hepatic abscess from amebic abscess, especially before the amebic abscess becomes secondarily infected. After such secondary infection has occurred, the clinical picture, the prognostic and therapeutic implications become similar to those of the pyogenic abscess.

Bacteriology

In the majority of the non-amebic abscesses the most commonly found organisms are the streptococci, staphylococci and bacillus coli, although almost every type of bacteria has been found in isolated instances. In almost half of the reported cases the pus has been sterile. Blood cultures in pyogenic abscesses are usually sterile.

Pathogenesis

The mode of origin of a solitary abscess in the liver according to most authors is considered to be a blood or lymph stream infection, probably by way of the hepatic artery from a focus such as an upper respiratory infection, carbuncle, influenza, et cetera. In Rothenberg and Linder's cases such a condition accounted for about one half of the individuals. In the other half no etiologic factors could be determined. In only two of their twenty-four cases was a portal vein or bile duct infection responsible. In other words the process is comparable to that of the production of a carbuncle of the kidney or osteomyelitis. Practically all these solitary abscesses occur in the right lobe and most of them involve the dome of the liver.

In multiple abscesses of the liver, the etiological process is one of suppuration in the portal system or biliary system such as suppurative appendicitis or cholecystitis, chronic ulcerative colitis, et cetera. In other words, the infection reaches the liver through the portal blood stream.

Diagnosis

Usually in the case of solitary pyogenic abscess of the liver there is a history of two to four weeks duration, with fever and occasional chills. Malaise and asthenia are pronounced. Indefinite, dull pain in the right lower thoracic region or right upper abdominal quadrant frequently gives the first hint of localization of the pathologic process. Localized intercostal pain is quite often present. Liver tenderness is usual, either on deep pressure with a single finger in an intercoastal space, or on palpation of the edge of the frequently enlarged liver, below the costal margin. This pain is usually directly over the abscessed area, and is non-radiating and constant. It may be dull or sharp, but rarely is it necessary to use heavy percussion to elicit this tenderness. Rapid loss of weight and

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Presented before the Minneapolis Surgical Society, March 2, 1950.

strength are prominent features, but interestingly, nausea and vomiting are present in only a small percentage of cases. As a matter of fact, nausea and vomiting are a rather rare accompaniment of this disease, and this is of special significance since so few surgical abdominal conditions lack this symptom. Therefore, this absence of nausea and vomiting is an important diagnostic feature. The liver is usually enlarged; a few cases have a palpable right upper abdominal mass; some spasticity of the rectus muscle on the right is usually noted, but is not marked. Limited expansion of the right chest is occasionally seen, and an elevated, fixed diaphragm seen on fluoroscopy is the rule. Other pulmonary signs present are râles at the right base and a small right pleural effusion. Rarely, a palpably enlarged spleen is found. Usually no evidence of ascites is noted. A leukocytosis of 16,000 to 28,000 is the rule and the neutrophiles may average 86 per cent.

In multiple liver abscesses, the symptoms, as one would expect, are more severe as a rule than those in which there is a solitary abscess. The fever is higher and more spiking, jaundice is more common, the liver is larger, and tenderness and spasm of the overlying muscles is greater. The diagnosis in this type can usually be made on the history of a preceding infection in the intestinal tract, whereby the offending organisms have opportunity to reach the liver via the portal or biliary system.

The amebic abscess can usually be distinguished by the previous history and findings of the ameba. In this disease the liver abscess (which occurs in 4 to 5 per cent of individuals with amebiasis in this country) has a characteristically slow onset over months or years, and there is present a minimum of constitutional reaction such as chills, fever and pain. It is true that in many cases the Endamoeba histolytica cannot be demonstrated, yet the history, a trial on antiamebic therapy, and other features of the disease will differentiate this condition from the other types of liver abscess, single or multiple. Of course after an amebic abscess becomes secondarily infected, it must be regarded as a pyogenic one.

Liver abscess must be differentiated from cholecystitis, subphrenic abscess, suppurative lesions of the right kidney and early pneumonia. Disease of the gall bladder can usually but not always be differentiated by a carefully taken history. Previous attacks of pain, intolerance of fatty foods, jaundice and difference in location and the type of pain and tenderness are usually of great help. The pain in liver abscess is steady and directly over the liver substance and not over the gall-bladder area. That in gall-bladder disease is intermittent, radiates to the back and is unbearable. Of course in acute cholecystitis the differential diagnosis is confusing although the enlarged gall bladder can usually be palpated as a tender mass. Subphrenic abscess tends to produce pain on deep inspiration, it usually radiates to the scapular region, and is frequently preceded by an infection within the abdomen. X-ray findings of pus beneath the diaphragm should make the diagnosis. However, when there is an abscess that points to the right dome of the liver, the diagnosis may be difficult. Suppurative lesions of the kidney may be difficult to differentiate from those cases in which the liver abscess involves the lower portions of the right lobe of the liver, because of the pain produced in the right loin. However urinary findings will be of assistance in this differentiation. Early pneumonia may give rise to pain in the right lower chest, fever and chills, but with rapid development of roentgenologic signs in the lungs, and the absence of enlarged liver, et cetera, one may usually differentiate the two conditions. In the differential diagnosis of liver abscess one should always remember that nausea and vomiting are most frequently absent probably because of the lack of peritoneal irritation. In practically all other surgical conditions of the abdomen this symptom is present. Constipation and diarrhea are also almost always absent.

Complications

Since most of these abscesses are on the dome of the liver, the infective process is likely to advance upward and involve the pleura or lungs. Consequently pleurisy with effusion, empyema and even rupture into the lung itself may occur. If the spread is downward the abscess ruptures into the peritoneal cavity. The resulting peritonitis is especially dangerous and the condition then presents the picture of a major abdominal catastrophe.

Prognosis

This varies of course with the location of the lesion, its early recognition, the type of organism responsible, and the multiplicity of the abscesses present. If removal of the pus is not carried out, the mortality rate is 100 per cent. In large series of cases, various authors report all the way from 37.5 to 60 per cent mortality. With the advent of antibiotics it can reasonably be expected that great improvement in results will be achieved. No large series of cases has been reported since these drugs have been used.

Treatment

The classical treatment of solitary pyogenic abscess is incision and drainage. It is repeatedly emphasized in the literature and considered highly important that contamination of either the peritoneal or pleural cavities be carefully avoided, since it has been shown that the mortality rate rises sharply whenever this occurs. If there is evidence of localization of the abscess in the anterior or antero-inferior surface of the liver, the technique described by Clairmont may be used. Briefly, this consists of using a subcostal incision, with mobilization of the parietal peritoneum from the lower surface of the diaphragm, when drainage of the abscess can usually be done extraperitoneally. If it cannot, adherence to the visceral and parietal peritoneum should be induced by packing with iodoform or other gauze, and drainage done through this area at a subsequent stage, two to three days later.

If there is no evidence of localization anteriorly, the retroperitoneal approach described by Ochsner may be employed. The twelfth rib is resected subperiosteally. A transverse incision is made through the bed of the resected rib at the level of the spinous process of the first lumbar vertebra. The reason for this is that the pleura never extends below the level of the spinous process of the first lumbar vertebra. The retroperitoneal space between the upper pole of the right kidney and the inferior surface of the liver is entered. The parietal peritoneum is mobilized from the under surface of the diaphragm, and the abscess drained.

Reports of the treatment of solitary liver abscesses since the advent of the antibiotics have been few. Kisner's cases are of great interest in this connection. In the second of his three cases, while waiting for adequate adhesions to wall off the disease process, penicillin was given parentally and also injected into the abscess following aspiration. At the second stage operation, several days later, the abscess cavity was found to contain only a few cubic centimeters of bloody fluid. His third case received penicillin for forty-eight hours pre-operatively. At operation, the pus evacuated was found to be sterile on culture.

Case Report

The patient is a thirty-six-year-old married white man who was first admitted to the hospital on April 20, 1948, with the chief complaint of severe steady pain in the epigastrium and right upper abdominal quadrant of one day's duration.

Past History.—This patient had had a long history of pain in the lumber portion of his back dating back to 1936. In 1939 removal of the inferior portions of the spinous processes of the first, second and third lumber vertebrae with accompanying ligaments was performed. In 1942 a protruded fourth lumbar intervertebral disc was removed. In 1943 a recurrent protruded intervertebral disc was removed and a spinal fusion performed. However, he continued to have difficulty with his back.

He had also had a history of recurrent spells of diarrhea during periods of severe nervous strain dating back about two years, consisting usually of watery stools after each meal. In 1947 he had been studied from this standpoint at the Mayo Clinic at the time of one of his many admissions there for his back trouble, and it was felt that the cause of the diarrhea was on a functional basis. The investigation at that time included many negative stool examinations.

Present Illness.—The day before admission the patient noted an intermittent, vise-like severe pain in the epigastrium and right upper abdominal quadrant, not crampy or colicky. It occasionally radiated through to the middle portion of the right back at about the level of the eighth to the twelfth thoracic vertebrae. This he stated was separate and different from his old back complaint. He had noted a slight fever in the preceding twenty-four hours, but no chills. He had been mildly nauseated, but had not vomited. There had been no jaundice, nor any diarrhea or abnormalities of the stools. He had had a mild "head cold" about three to four days before admission with a mild dry cough.

On entrance into the hospital, the patient's temperature was 102° F., the pulse was 100, respirations were 18. The blood pressure was 132/70. He was flushed and perspiring and was in acute distress. A general examination revealed a diffuse tenderness and moderate rigidity in the right upper abdominal quadrant. No rebound tenderness was elicited, and no masses were palpated. There was moderately hyperactive peristalsis heard upon auscultation of the abdomen.

X-rays of the chest and abdomen were interpreted preoperatively as negative. On critical review of the chest x-ray postoperatively in conference with the roentgenologist, it was felt that there was a minimal infiltration at the left base and left cardiac border, consistent with a mild broncho-pneumonia. The diphragm shadows were clear and at normal levels. The white count was 22,100, with 86 per cent neutrophiles. The sedimentation rate showed a fall of 45 mm. in one hour. A urine examination was entirely negative except for a faint trace of albumin. The serum amylase was 305 mg. per cent, somewhat above the 200 mg. per cent considered normal at this laboratory. This moderate elevation of the serum amylase was considered to be suggestive, but not diagnostic enough to warrant ignoring what appeared to be a quite typical picture of acute inflammatory disease of the gall bladder. A tentative diagnosis of acute cholecystitis was made and the patient was operated upon seven hours after admission.

The abdomen was opened through a long right rectus incision. A complete exploration of the abdomen was made but revealed only the presence of a chronic inflammation of the gall bladder, which was thereupon removed. The common duct appeared entirely normal. Palpation of the pancreas revealed no abnormalities. Pathologic examination of the gall bladder showed evidence of a mild inflammation characterized microscopically by lymphocytes and fibrotic changes in the wall.

Postoperatively, the patient was carried on continuous nasal suction for the first three days. The rectal temperature ran from 100° to 101° F. for the first four days and was normal thereafter. He was given large doses of antibiotics daily for ten days. The infiltrative process at the base of the left lung was shown to have disappeared completely by a chest x-ray taken two days before his discharge from the hospital on the eleventh postoperative day. An electrocardiogram on the fourth postoperative day was interpreted as being within normal limits.

Four weeks later, the patient was re-admitted to the hospital on May 27, 1948, giving the history that for a short time after returning home he had done well, but in about one week had begun to pursue a downhill course, with malaise, anorexia, recurring fever, and gradual loss of 20 pounds in weight. In the week prior to admission he had suffered from nausea and vomiting and had been unable to retain anything solid taken by mouth. He had felt quite distended and had belched frequently. No spontaneous stool had been passed in this week.

When first seen, he presented evidence of weight loss and severe dehydration. He appeared acutely ill, and complained of a steady rather severe pain in his right upper abdomen. His temperature was 99.8° F., the pulse 92, the respirations 16. The blood pressure was 108/68. A firm rounded tender mass was palpable in the midportion of the upper epigastrium. It was non-movable and seemed semi-fluctuant. It was approximately 6 to 8 cm. in diameter, although its edges could not be clearly defined.

A scout film of the abdomen showed no evidence of intestinal obstruction, gastric dilatation, or other pathologic conditions and a chest x-ray was negative. The hemoglobin was 14.9 gm., the red count was 4,800,000, the white count 13,500 with 78 per cent neutrophiles. The sedimentation test showed a fall of 96 mm. in one hour. The blood urea nitrogen was 16 mg. per cent, the CO_2 combining power was 73 vol. per cent, and the chlorides were 496 mg. per cent. The urine was entirely negative. A blood culture showed no growth in forty-eight hours.

For the first two days after admission, he was allowed only small amounts of liquids by mouth, and he was given intravenous fluids in large amounts with supplementary parenteral vitamins, followed by distinct improvement. He had a daily afternoon elevation of temperature, varying from 100.6° to 101.2°. During this time the mass described in the upper abdomen increased somewhat in size, and became excruiatingly tender.

Under general anesthesia, forty-eight hours after admission, an incision was made directly over the abovementioned mass. The tissues of the various layers of the abdominal wall were moderately edematous and quite indurated. The peritoneum was opened and in the anterior edge of the right lobe of the liver a rounded mass was seen covered with whitish, thickened liver capsule. An incision was made into the mass, and about 300 to 400 c.c. of thick cream colored pus were evacuated. The pus was not the cholocate color described as being characteristic of an amebic abscess. A cautious digital exploration of the abscess cavity was done. Further general exploration was not done although it might have been well to have taken a biopsy of the wall of this abscess. A soft Penrose drain was placed deep in the abscess cavity and brought out through the incision which was then closed about it in layers.

In twenty-four hours the patient's temperature dropped to normal and remained so thereafter. For the first three days, he was carried on parenteral fluids, large doses of antibiotics, a gradual increase in oral intake and by the eleventh postoperative day, the patient was feeling fine, eating well, and had gained eight pounds in weight.

A direct culture from the contents of the liver abscess at the time of surgery showed streptococcus viridians. No amebae were seen on fresh direct smear. Postoperatively, four successive stool cultures were negative for pathogenic bacteria and for entameba histolytica in either vegetable or encysted forms. A proctoscopic examination showed a perfectly normal rectum and rectosigmoid for a distance of 25 cm. A fresh smear taken from the bowel wall during this examination was negative for entameba histolytica. Roentgenologic studies of the colon gave negative results.

The drainage from the wound was surprisingly small and was purulent for the first few days only. The drain was gradually shortened and was removed on the fourteenth postoperative day.

When seen about a month later, the patient stated that he was eating well, his strength was excellent, and he had had no symptoms referable to his abdomen. The wound healed normally.

Six weeks postoperatively the patient was in excellent health, except that he had been having occasional loose stools after meals for a few days. As in the past, these symptoms coincided with a period of excessive nervous tensions.

Discussion

The exact etiological basis for the pyogenic liver abscess in this individual is still a matter of some conjecture, although the possibility of its being amebic in origin has been pretty well eliminated. The most likely explanation is that the abscess was primarily a so-called solitary pyogenic abscess probably of metastatic origin, such as those described by Rothenberg and Linder possibly arising from a respiratory infection. Its incipient stages may have been responsible for the symptoms that led to his cholecystectomy.

A number of other possibilities might be developed, for which there is only little evidence, and certainly no definite proof.

1. Cholecystic disease might have initiated the disorder. This is unlikely. In a single reported case where biliary tract disease was the etiological agent, the abscess resulted from direct extension of an acute suppurative or gangrenous cholecystitis, quite the contrary to this case. In a review of all the available literature from 1930 to the present dealing with complications and mortality following biliary surgery, only one case of liver abscess was described (Doran et al). The articles consulted represented about 45,000 cases. However it is readily understandable that many of these complications would go unreported.

2. A branch of the right hepatic artery might have inadvertently been ligated at the original cholecystectomy, producing an infarct which became secondarily infected, with abscess formation. This is unlikely because one would have expected in the postoperative period more immediate signs and symptoms of something drastic taking place, whereas the patient made a normal recovery. Also, this theory offers no explanation for the definite signs and symptoms that led to the cholecystectomy.

3. Amebiasis may have been the underlying factor all along, with an amebic hepatitis having been present for several years prior to the first admission, which progressed to abscess formation, and the abscess becoming infected with secondary invaders producing the symptoms and signs leading to his cholecystectomy. The ubiquitous postprandial loose stools seem to favor this amebic theory, but the following facts are rather good evidence against this: (a) The presence of the regularly occurring "diarrhea" so suggestive of an exaggerated gastro-colic reflex, yet the patient maintained his normal weight and general good health. (b) The failure on many stool examinations, properly secured, to demonstrate the parasite. The presence of a diarrhea in amebic infestation usually means left colon involvement, and there should have been some positive evidence in the many stool examinations, repeated proctoscopic examinations and colon fluoroscopic examination. (c) The failure to demonstrate any amebae in the pus from the abscess. These should have been found since the abscess was a recent one, and it has been shown that the organisms are usually present in this type of abscess. In long standing cases where the abscess wall is fibrotic it is necessary to scrape the wall to obtain the organism. Furthermore the pus was creamy in color and not the typical "chocolate sauce" variety which is so characteristic of amebic abscess. (d) The failure of the patient's symptoms to be affected in any way by a therapeutic trial of specific anti-amebic medications, carried out some months later at home.

4. A mild chronic relapsing pancreatitis with secondary cholangiocholecystitis and hepatitis may have started the sequence of events. This possibility has much to be recommended it, but again there is no definite proof. The moderately elevated serum amylase at the time of cholecystectomy is not very good evidence. In this connection, Pemberton, Musgrove and others have recently shown that involvement of the pancreas by an adjacent pathologic process may produce a moderate elevation of the serum amylase.

Summary

1. A case of solitary pyogenic abscess in the anterior right lobe of the liver is hereby presented which was cured by incision and drainage.

2. The pathogenesis of this abscess was most likely a metastatic infection through the hepatic artery arising from a pre-existing respiratory infection.

3. The symptomatology in this case so closely simulated that of an acute cholecystitis, that cholecystectomy was done, only to find that four weeks later the abscess in the liver became obvious.

4. From the prognostic and therapeutic standpoint, it is important to differentiate between solitary and multiple pyogenic abscesses. The solitary types have less violent constitutional manifestations, less pain, and less leukocytosis than do the multiple. In addition, the multiple liver abscesses usually have a pre-existing infection in that part of the abdomen drained by the portal system. Jaundice is more common in the latter type.

5. In the differential diagnosis of pyogenic liver abscess, the most likely conditions to be considered are cholecystitis, subphrenic abscess, suppurative lesions of the right kidney and early pneumonia.

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SUBFASCIAL FAT ABNORMALITIES AND LOW BACK PAIN

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IN recent years several investigators have called attention to the importance of fat tissue in the subfascial spaces as factors in painful syndromes. Our former concept of fibrositis as a clinical or pathological entity involving muscle or fibrous tissue has been dispelled by the discovery that the painful lesions which were interpreted as "fibrositic" nodules are, in reality, masses of fat tissue which have undergone changes and are causing varying degrees of disability.

The principal contributors to our knowledge of the painful lesions of fat tissues are Copeman and his associates.[1,2] The original studies were made in cases of painful disabilities of the back. After charting the location of the trigger-points, usually represented by a tender nodule of tissue, dissections of the muscular and fibrous tissues in the painful areas were undertaken. It was revealed that the deep fascia of the back was frequently defective or very thin, permitting the fat tissue underneath the fascia to herniate through the defect. Three types of herniation are described: the pedunculated, the non-pedunculated and the foraminal, the latter occurring through the foramina of the lumbar nerves as they pierce the deep fascia. Another form of abnormality in fat tissue is edema of individual lobules, causing pain presumably by tension of the tissues.

Within the confines of the basic fat pattern described by Copeman,[1] the site of predilection for herniation is a narrow strip along the lateral border of the sacrospinalis muscle from the lower costal margin to the iliac crest. Tension syndromes due to edema are likely to arise from the region of the sacrum, from the area of residual fat situated immediately below the rim of the ilium, and from the dorsal fat pad, a diamond-shaped area in the upper part of the back, corresponding roughly to the outline of the trapezius muscle which lies beneath it.

An additional abnormality of fat tissue is described by Copeman as panniculitis, which occurs in abnormally deposited fat, mostly in predictable sites.

Among the etiological factors mentioned by Copeman[1] are endocrine disorders, sodium balance, heredity and exposure to cold environment. Treatment is discussed from the standpoint of diet, endocrines, diuresis and dehydration, physiotherapy, injection and surgery.

Herz[3] reported thirty-one cases in which treatment consisted of surgical removal of the painful lesion. In a later report (quoted by Hucherson and Gandy) his series consisted of 229 cases, of which sixty-seven were subjected to operation. Hucherson and Gandy[5] report thirty-two cases in which surgical treatment was employed. They state that operation was considered necessary in approximately one-fourth of the patients; in the remainder, adequate relief was obtained by injection with local anesthetic. Orr, Mathers and Butt[12] described fibrolipomatous lesions as sources of somatic pain and directly responsible for clinical manifestations which suggest disease of the kidney or ureter. A form of fat abnormality, episacroiliac lipoma, has been described by Hittner[4] who reported a series of fifty cases in which the lesions were removed by operation. Relief of pain in the lower part of the back was obtained in forty-five instances.

In all these reports there seems to be general agreement regarding the nature and the location of the painful structures, the methods of identification, and the high percentage of successful results following treatment.

From personal observations on patients with painful back, it is possible to agree with many points discussed by Copeman and others. Of those who were treated by injection of local anesthetic into the painful or tender sites of the back, it was possible to obtain varying degrees of relief from pain in the majority of cases. In some instances relief was complete and apparently permanent; in others it was incomplete, and recurrence was not uncommon. Efforts were directed toward locating the primary source of the pain, as manifested by localized tenderness. By careful palpation it is usually discovered that the tenderness is distributed over a large area of the lower part of the back, though frequently localized in more clear-cut intensity at certain sites.

Referred pain is a common subjective manifestation. This is frequently noted in the lower extremities, although it may also occur in other portions of the lower part of the back. It is more often unilateral. It is generally accepted that referred pain has a segmental pattern; it occurs within the distribution of the same spinal nerve as that from which the primary pain arises. It is also agreed that sensory innervation of the deep skeletal structures differs greatly from the pattern of dermatomic supply. Our knowledge of these characteristics of deep somatic pain is derived largely from the investigations of Lewis and Kellgren,[10] Kellgren,[7,8,9] Inman and Saunders,[6] Sinclair, Weddell and Feindel,[13] Wolff and Wolf,[14] and many others. The practical significance of referred pain lies in calling attention to a primary focus of pain elsewhere. The source of pain of this nature is rarely located by the patient with any degree of accuracy. If on examination the trigger-point is irritated, reference of pain serves as a valuable aid in identifying the algogenic region.

Referred tenderness is a characteristic of deep somatic pain which, although it suggests a similarity to referred pain, is vastly different in its mechanism of development and usually in its topographic location. This term is applied to sites of hyperalgesia, resulting as secondary phenomena to the primary source of pain. Thus it is possible in many instances to elicit tenderness at numerous points in the lower part of the back or the buttocks, in locations remote from the trigger-point. The degree of tenderness is variable. Where numerous sites of this nature becomes evident, it is often confusing and difficult to locate the trigger-point. It is frequently necessary to determine the point of origin of the pain by a process of elimination—by injection of local anesthetic into successive tender regions. Thus, by a successful injection of the trigger-point, all pain and all tenderness can be abolished; on the other hand, injection of a secondary site of pain is usually effective only in relieving the tenderness at the treated area.

The status of our knowledge of referred pain has recently been defined as follows: "Stated broadly, then, the numerous shades of opinion can be reduced to two opposing beliefs. The first of these is that some mechanism located in the central nervous system is responsible for all the phenomena of referred pain, and the second is that these phenomena are produced by events taking place in the periphery. It is no doubt possible that by considerable amplification of one or other of these theories a hypothesis might be arrived it, which would adequately overcome the objections which could be levelled against it. Nevertheless, the fact remains that, *as they are at present stated,* neither hypothesis is capable of explaining all the observed facts . . ."[13]

Sinclair, Weddell and Feindel[13] suggested, further, the following hypothesis for occurrence of referred pain and tenderness in somatic structures: "The anatomical basis of the physiological processes concerned in the production of referred phenomena is the branched axon. In any given case there are two main mechanisms at work; the first of these is the misinterpretation by the central receiving apparatus of the source of the painful impulses, and the second is the production in the periphery, as a result of antidromic impulses, of metabolites which at first stimulate the nerve endings there and later damage them. It is probable that the operation of the first of these mechanisms gives rise chiefly to referred *pain,* while the chief result of the operation of the second is referred *tenderness,* but both mechanisms must be considered in relation to either phenomenon."

"Anesthetization of the area of reference will affect the second mechanism in two ways, first by the interruption of the painful impulses arising there on their way to the central nervous system, and secondly, by the blocking of the antidromic impulses which are activating and perpetuating these painful impulses. The result of this procedure is therefore to abolish the pain and tenderness resulting from the operation of the peripheral chemical mechanism."

A study of records indicates that the most common manifestation found in cases of painful back is tenderness in the sacral paraspinal region. This may involve one or both sides of the midline. In case of a bilateral site of tenderness in the sacral region, usually only one side harbors a lesion which is sufficiently painful to cause disability and therefore require treatment. In many instances when the trigger-point of pain is located in that area, injection with local anesthetic will provide relief for indefinite periods of time, varying from weeks to months and sometimes permanently. When pain recurs after short intervals or in cases where no relief is obtained beyond the duration of the local anesthetic effect, surgical removal of the painful lesion is indicated.

Another location in which abnormalities of fat tissue develop as primary sources of pain is the ilio-lumbar area, along the lateral margin of the sacrospinalis muscle. The most common condition at this site is a herniation of fat lobules through the deep fascia.

It is necessary to mention that the apparent ease with which other observers are able to identify the painful lesions represents an understatement or a misunderstanding of the total picture of such abnormalities. Most patients do not present the typical clinical manifestations, consisting of a history of pain and a palpable, sensitive nodule, so easily located and treated; many patients, in fact, do not present any nodule or enlargement which is significant. In addition, tenderness is often elicited only on heavy pressure and after meticulous search in the suspected location. When multiple sites of tenderness are encountered, it becomes necessary to determine the primary source of the pain. Apparently Moes[11] has recognized similar situations in the subcutaneous nodules lacking the trigger-point tenderness and the typical relief on injection. The procedure of local anesthetization is necessary in all cases for positive identification of the primary source of the pain; it is especially useful when pain and/or tenderness are widespread and where a clear-cut radiation of pain cannot be elicited so that the patient is able to identify it as that which he experiences.

The technique of injection consists of locating the painful area with the point of the needle. This requires the patient's co-operation. The site of the pain is infiltrated and, after anesthesia is obtained, the point of the needle is manipulated to disrupt the tissues from which the pain arises. It is advisable to warn the patient that the pain may be aggravated temporarily after the local anesthetic is absorbed.

Surgical treatment, when necessary, is carried out under local anesthesia. In this, the patient's co-operation is needed. After infiltration of the skin, the incision is made and dissection is carried out down to the fascia. The fascia is examined visually and by probing with a needle for the purpose of identifying the location of the abnormal tissues. It is sometimes possible to incise the fascia without causing excessive pain. It is always desirable, if possible, to locate the trigger-point accurately prior to anesthetization of the deep tissues. The deep fascia is then incised and the abnormal tissues are removed. As there is frequently a prolonged and a persistent accumulation of blood and serum from the surgical field, it has become a practice to leave a small drain in the wound for a period of five to seven days, after which a sinus is formed. This usually heals in three to four weeks. Ordinarily patients need not be hospitalized.

Surgical treatment consisted of eleven operations on ten patients. In three the operative site was the ilio-lumbar region, at the lateral margin of the sacrospinalis muscle. In one of these, the abnormality consisted of swelling of several fat lobules underneath a very thin portion of the lumbodorsal fascia, which was bulging but not ruptured. In a second, a bilateral operation showed on each side small herniations through the fascia. In a third case, a marked sciatic scoliosis and pain in the gluteal region were associated with tenderness in the ilio-lumbar area at the level of the iliac crest. These features were satisfactorily corrected on two different occasions by preoperative injection of procaine. At operation, the painful area was identified by the patient in a small patch of the lumbo-dorsal fascia. This was incised. The only feature which appeared significant as an abnormality was a firm adherence of several small masses of fat tissue to the ventral surface of the fascia. This was resected. Postoperative progress was satisfactory for five days, after which the pain and the curvature reappeared. These manifestations were relieved by evacuation of a small hematoma. During the next two weeks a firm swelling, suggesting a cyst, developed in the operative site, and with this, a recurrence of the pain and the scoliosis.

In seven patients the sacral region was explored; the operation was bilateral in four. The findings here consisted of swollen lubules of fat tissue underneath the deep fascia. The enlarged lobules or "bubbles" of fat were removed together with other portions of fat tissue in the operative field which were apparently normal. The swelling was the only significant abnormality which was encountered. Microscopic examination showed normal fat tissue.

All these patients were afflicted with varying degrees of disability due to pain in the lower part of the back. In the majority of these, the pain was referred elsewhere, most commonly to the lower extremity. In one case the back pain was associated with coccygodynia. In two cases pain referred to the upper portion of the back was relieved following the operation. In four patients, headache was a prominent symptom, apparently related to the pain in the lower part of the back. These unusual phenomena require a more detailed analysis which is planned at a later date.

The immediate postoperative results have been uniformly satisfactory. Relief from pain has been prompt in all cases and, with one exception, has been maintained during the period of observation, varying from two to twelve months.

Summary

From a review of the literature and observations on ten patients, it is evident that abnormalities of subfascial fat tissue constitute an important factor in the development of painful disabilities of the back. The principal features responsible for clinical manifestations are edema and herniation of the fat tissue. A knowledge of the principles and the mechanism of referred pain is essential for adequate evaluation of the clinical phenomena.

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SOLITARY PYOGENIC LIVER ABSCESS

(Continued from Page 592)

6. The complications of these abscesses are concerned with rupture of the abscess into the pleural or peritoneal cavities, lungs or surrounding viscera.

7. With proper treatment, the prognosis in the solitary type of liver abscess is much better than that in the multiple. In large series of cases the former carry a mortality rate of 37.5 to 60 per cent, while in the latter it is usually given as 90 to 95 per cent. Without treatment the mortality rate in either type closely approaches 100 per cent.

8. Treatment consists of early incision and drainage of the abscess either anteriorly or posteriorly in such a fashion as to avoid contamination of the pleural or peritoneal cavities.

9. With the present day advantage of the antibiotic drugs much improvement may be expected in the prognosis of these abscesses, since most of them are due to the staphylococcus, streptococcus and colon bacillus.

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HEMOLYTIC TRANSFUSION REACTION IN OBSTETRICS

Report of Case

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DOUBTLESS hemorrhage is now the most important complication of obstetrics. Transfusion is the immediate stop-gap in treatment and no doubt accounts for decreasing mortality. Nevertheless, in practice one is at times sharply made to feel the inherent danger of this now commonly used procedure. These dangers are illustrated by the following case.

The case is that of a twenty-seven-year-old woman, gravida III, who came into the hospital in the fifteenth week of her pregnancy bleeding profusely and having severe cramps and faintness. She had not to her knowledge passed her fetus. Examination showed a very pale young woman with a pulse of 108, and blood pressure of 100/52. The uterus was soft and the size of a three and a half months' gestation. Her hemoglobin was 13 grams on admission and leukocytes 3,150. In a few hours the hemoglobin dropped to 9.9 grams, and 500 c.c. of whole blood, type AB, Rh positive (homologous), was given with 1000 c.c. of 5 per cent glucose and saline. Ergotrate also was given intravenously. She was then taken to the operating room. Under 24 c.c. of pentothal anesthesia intravenously, examination showed the vagina filled with 500 c.c. of clots. Fetal membranes and large pieces of placenta were removed and the cavity of the uterus thoroughly cleaned. The report of the pathologist was "incomplete abortion." The patient's condition was satisfactory except for pallor and a pulse of 104 and blood pressure of 92/66.

That evening her hemoglobin had dropped to 7.8 grams, and a second transfusion was ordered. On the third hospital day a second transfusion of O positive blood was started at 4:30 p.m. and discontinued at 5:40 p.m. Soon thereafter she was noted to have headache, backache, and an indescribable tense feeling in her trunk as though she would burst. Her pulse was now 130 and regular. She vomited considerable cherry colored liquid flecked with blood. This was chemically positive for blood. Soon there was diarrhea with gross blood. She presented an appearance of profound shock. She was given atropine and benadryl with no apparent change. At 8:15 she was catheterized and 100 c.c. of bile-stained urine obtained. This showed destroyed red cells—loaded—and 4-plus albumin. She received 500 c.c. of sodium lactate solution at three different intervals in an attempt to keep the urine alkaline. The day following transfusion, 165 c.c. of urine was obtained in three catheterizations. On the second day following transfusion, no urine whatever was passed; on the third day she passed 5 c.c. of very thick urine; on the fourth day no urine was passed; on the fifth day 5 c.c. was passed; on the sixth day she passed four small specimens, a total of 10 c.c.; on the seventh day she passed 38 c.c. in four voidings; on the eighth day she passed 140 c.c. on two occasions, and by the eleventh day she had increased her output to 2485 c.c. of urine. The first two urines showed 4-plus albumin and were positive chemically for occult blood. Albumin was 4-plus to the sixth post-transfusion day. On the eighth post-transfusion day there was 1-plus albumin and thereafter it contained no albumin. On the day of reaction, the direct Van den Bergh was 1.3 mg. per cent, and the indirect Van den Bergh was 3.4 mg. per cent. The next day it was 0.13 mg. per cent, and 1.85 mg. per cent.

The blood urea nitrogen on the day following reaction was 29 mg. per cent. It rose rather evenly to a high of 110 mg. per cent on the tenth post-transfusion day and was 84 mg. per cent on the day of discharge. Several weeks later it was 11 mg. per cent.

The CO_2 was 75 vol. per cent on the day following her reaction and varied from 51 to 63 per cent and was still 51 vol. per cent on the day of discharge.

The blood chlorides were rather stable. On the third day their value was 542 mg. per cent; was lowest (482) on the fifth day, and 572 mg. per cent on the day of discharge.

The hemoglobin dropped to 7.4 grams following transfusion reaction, was 8 grams on the seventh day, and again 7.8 grams on the fourteenth day.

The white cell count was highest on the third day when it was 32,520, and gradually dropped to 12,300 on the tenth day.

The blood pressure remained remarkably stable after being at shock level of 80/55 some nine hours after reaction. There was one recording of hypertension on the thirteenth day of 150 systolic and 85 diastolic. This promptly returned to a normal level.

Her weight normallly was about 128 pounds. When taken on the third post-transfusion day it was 136 pounds, and reached 141 pounds on the seventh day. It then orderely receded with increase in urine volume to 120 pounds on discharge.

Except for the post-transfusion fever reading of 103° the temperature promptly came down and remained at 100° or less for the rest of her hospital stay. The pulse likewise, except for the early reaction, remained mostly around 80.

Her gastrointestinal tract had an immediate convulsive session of vomiting and diarrhea. This quieted down to occasional vomiting of small amounts of brown or greenish fluids. She was willing to co-operate in food intake. The most acceptable food seemed to be the pellets of butter and sugar, as suggested by Dr. C. D. Creevy. Normal appetite came back in about two weeks.

The general attitude of this woman throughout this gruelling experience was quiet, even lethargic. She talked very little and at first moved very little. She stated she had soreness especially in the lumbar region. She was kept in bed eleven days. She was very pale and had some trunk and facial edema before the diuresis, but never any pitting edema of the extremities.

The treatment, as indicated in the chart, was aimed at adequate nutrition, water, and electrolyte balance during the time it takes for the damaged kidney to recover. Diathermy to the kidney areas twice daily was given empirically, believing it might stimulate circulation in the kidney through relaxation of vasospasm.

There seems to be little hesitancy to place this dramatic case as one of transfusion reaction. Of the three types of reaction there are: (1) physical and chemical reaction, (2) allergic or urticarial reaction, (3) hemolytic reaction. Among the latter there are: (a) intra-group type of Rh reaction or "cold" hema-agglutinins, (b) gross incompatibility, (c) dangerous "universal" group O donor.

Strumia stated that when using group O blood it would seem desirable to use those blood with titers of less than 1:60 isoagglutinins. Witebsky et al, feel that this precaution is unnecessary if purified A and B substances are added to the blood in order to neutralize the isoagglutinins. Straumia further suggests that in need of extreme precaution one may use the biological test of giving 100 c.c of the blood and comparing five hours later the serum bilirubin of the patient's blood then with the pre-transfusion level.

The seriousness of this condition, in Strumia's opinion, is modified by several factors. In general, in those with previous kidney damage, the outlook is unfavorable. Those receiving less than 250 c.c. of blood will usually recover. Those receiving 500 c.c. or who have had previous transfusion reactions will usually die.

The incidence and death totals are best illustrated by the groups and statistics collected by Wiener and shown in Table I.

In considering some of the literature on this subject, the most interesting discussion is on the pathogenesis of the sequelae of hemolytic reaction in the kidney. The varieties of theory on kidney pathology are briefly four: (1) blockage of renal tubules, (2) anaphylaxis, (3) nephro-toxic substances released from hemolysis, (4) ischemia of kidney from vasoconstriction.

The theory, from the laboratory studies of Dodds, DeGowin and Richards, of blockage by acid hematin crystals seems not to be substantiated clinically, as in a number of deaths there were few with blocked tubules. Strumia states that in four of his cases there were none blocked.

TABLE I. TRANSFUSION STATISTICS

	Year of Report	No. of Transfusions	No. of Hemolytic Reactions	Deaths
		Fresh Blood		
Wiener*	1917-1941	19,275		39
Kilduffe and De Bakey	1917-1941	43,284	80	45
		Stored Blood		
Weiner*	1939-1941	8,236		9
N. E. Deaconess Blood Bank	1942-1946	13,000	2	1
Mass. Mem. Blood Bank	1940-1946	6,464	1	0
Hartford Hosp. Blood Bank	1941-1946	16,000	2	0
Mass. Gen. Hosp. Blood Bank	1942-1946	28,588	8	2
Peter B. Brigham Blood Bank	1945-1946	2,140	3	0
Children's Hos. Boston Blood Bank	1946	1,200	1	0
Boston Lying-In Blood Bank	1946	452	1	0
Total		76,080	18	12

*These are the totals of a group of statistics collected by Wiener and presented in his book.

The theory of anaphylaxis is opposed by two facts: one is that hemolytic transfusion reaction usually follows a single dose of whole blood; and, second, urticaria has never been seen with fatal post-transfusion reaction.

That there is a nephro-toxic substance released from blood hemolysis is difficult to prove. Hemoglobin of itself is nontoxic. But the protein substances contained in the red cell stroma is likely to be the toxic factor. This toxic factor leads us into fascinating current work that is being done on renal mechanisms and particularly renal circulation as under control of a neurovascular reflex.

Baldwin Lucké, in a monumental work, studied a series of 538 cases from the clinicopathological viewpoint. He states: "It is appropriate to designate all cases exhibiting these renal disturbances no matter what their etiologic background by a single term." This he gave the name of "lower nephron nephrosis." The various causes of this lesion he lists as follows:

1. Crush syndrome
2. Thermal burns
3. Heat stroke
4. Black water fever
5. Chemical poison or sensitivity
6. Alkalosis
7. Hemolytic transfusion reaction
8. Non-traumatic muscular ischemia
9. Toxemia of pregnancy
10. Utero-placental damage

At present, the exact pathogenesis is not too well known. Lucké states: "Several factors are concerned in combination. Among those implicated are: degradation products of myoglobin and hemoglobin, products of tissue breakdown, physiochemical alteration of blood and body fluids, shock and disturbances of renal blood flow resulting in ischemia of the kidney and anuria."

In a recent article by Mauzy and Donnelly, who studied nine cases of urinary depression in the toxemia of pregnancy, they advance the theory that both the liver and kidney are involved. One detoxifies, the other excretes. The liver is the first line of defense and, in case of damage here, the kidney or second line of defense takes over. They have made a diagram in simple explanation (Fig. 1).

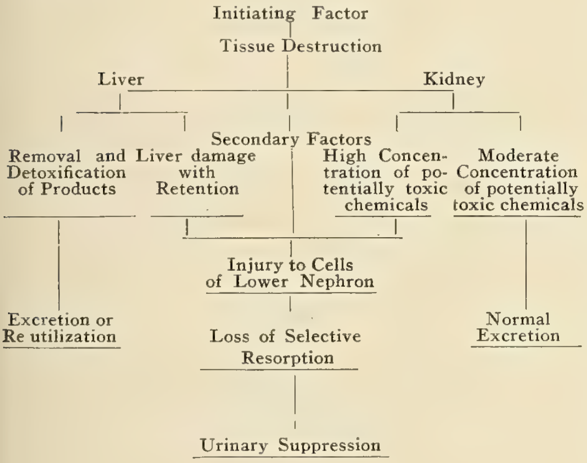
Initiating Factor
Tissue Destruction
Liver
Kidney
Secondary Factors
Removal and Detoxification of Products
Liver damage with Retention
High Concentration of potentially toxic chemicals
Moderate Concentration of potentially toxic chemicals
Injury to Cells of Lower Nephron
Excretion or Re utilization
Loss of Selective Resorption
Normal Excretion
Urinary Suppression

Fig. 1.

This article and diagram bring back to mind the term hepato-renal syndrome seen in the literature a number of years ago.

Ward O'Donnell, in 1949, reported three cases to show proof between lower nephron nephrosis and abortion. There was jaundice in two of the three cases and the third had hepatic zonal necrosis. All three had the typical renal pictures. All three had similar uterine findings, namely, necrotic decidua and chorionic epithelium. He says: "In our cases it is probable that the theoretic substances had origin in the retained placental tissue. . . . It is also possible that both factors—a hypothetic vasonconstrictive humoral substance from the ischemic placenta and toxins from invading bacteria—might, by synergistic effect, act on a susceptible neurovascular mechanism to produce reduced cortical flow, a result not obtainable by either acting separately. The role of bacterial toxins may be that of producing hepatic damage sufficient to produce hepatocellular dysfunction and inability to detoxify circulating placental products. These substances would then be free to act unfavorably on the kidneys."

Obstetricians will be particularly interested in the work of British pathologists and physiologists. The syndrome was first noted in the first World War and then forgotten for nineteen years. In the early part of the World War II, Bywaters and Dible in 1942 noted the syndrome in war injuries and called it the "crush syndrome." They reported a characteristic lesion in the lower nephron manifested by degeneration of the epithelium and deposits in the tubules of crystals of blood pigments.

Identical pathological changes were noted by Bratton and James Young in obstetrical anurias associated with abruptio placentae. J. F. Smith, of London Hospital, in examining seventeen necropsy cases of eclampsia, found pigment casts in the second convoluted tubules and ascending limbs of Henle in three. In two of the three cases there had been oliguria. Abruptio has long been believed to have a background of toxemia. Evidence now suggests that abruptio and toxemias (in certain cases) and crush injuries may have a common picture in this lower nephron nephrosis.

From Nuffield Institute (Oxford) comes an important monograph by Josef Truetta et al, "Studies of the Renal Circulation." Here he postulates by animal study that normally the renal cortex receives most of the blood and the medulla the smaller part. The blood reaching the kidney has two potential routes. The path of the greater circulation is through the cortical glomeruli. When blood follows this route, the glomeruli are well filled, urine flow is normal, and the blood in the renal vein is venous. The pathway of the lesser circulation of the vessels is to the medulla and to the juxta-medullary glomeruli. When vascular spasm shunts blood through this route, the flow of urine is decreased and the blood in the renal vein is largely arterial. The primary cause of lower nephron nephrosis is this cortical ischemia due to a shunting of the blood and its toxic products by a neurovascular reflex into the medulla.

It is further postulated that this neurovascular mechanism of the kidney is largely protective. Though there may be complete desquamation of these tissues, they can regenerate in four to ten days, showing the reparative power of the kidneys provided the individual can survive the repair period. Mr. T. L. T. Lewis believes that if there is a sudden release of toxic products into the circulation, as in uterine muscle breakdown from abruptio placentae, the kidney deals first in the protective mechanism of the "Truet a Shunt" so as to save the cortex. If this mechanism is overwhelmed or fails, the delicate cortical vessels are injured, paralyzed, engorged and finally blocked. In the first, we have lower nephron nephrosis and possible recovery. In the second, we have cortical necrosis and inevitable death.

The cause of death in these cases is not uremia. More properly it involves electrolyte balance, acid and base equilibrium and water distribution. The diminution of urine, as studied by Bywaters and Dible, "is now due to excessive, but unselective reabsorption of the glomerular filtrate through the tubules—in other words, leakage back into the blood stream." The kidneys are involved in protein metabolism as they can form urea. Therefore, breakdown in kidney function may give rise to toxic protein metabolites. Uremic death is more than an accumulation of urea, uric acid and creatinine.

Prof. K. J. Franklin and his co-workers have shown what a hair-trigger mechanism the renal shunt can be. Stimulation of a sciatic nerve end or the nerve plexus about the renal artery, the injection of staphylococcus toxin or pituitary extract can instantly bring about the cortical ischemia. Another field that can reflexly evoke the "Oxford shunt" is the so-called "stretch stimuli." This is the distension of hollow organs composed of smooth muscle. Distending the bladder with normal saline solution, stretching the intestine or parts of the pregnant and nonpregnant uterus, similarly are followed by this renal neurovascular response. He advances the hypothesis that the toxemia of pregnancy is, or includes, a progressively increasing tendency for the renal shunt to be brought into operation and that cortical necrosis represents the maximal irreversible result of this tendency.

Conclusions

Though constantly minimized by basic research, transfusion is still a dangerous procedure requiring rigid observation of the known rules. Prevention is paramount. The syndrome of lower nephron nephrosis seems to underlie such clinically diverse conditions as shock, burns, eclampsia, chemical poisoning, muscle injury and intravascular hemolysis.

Recent clinico-pathology and physiological reresearch have revealed some of the facts regarding the cellular pathology and the neurovascular mechanisms in the kidney. Furthermore, those facts seem to apply to body defense mechanisms which heretofore were not thought to be related. These mechanisms are probaly basic to homeostasis.

Though many extravagant methods have been tried in the treatment, the simple maintenance of adequate nutrition and water and electrolyte balance best serves the body in the period of the fourth to the tenth day when, if possible, the kidney cellular damage is repaired. The case reported was followed on this basis, with fortunate results.

PSYCHIATRIC EXPLANATION OF BALDNESS

The April, 1950, issue of *Modern Medicine* condenses "A Theory of the Pathogenesis of Ordinary Baldness" from *Archives of Dermatology and Syphilology*.[1] This ingenious explanation relates baldness to tension of scalp muscles creating shearing stresses in the dermis, with subsequent ischemia and alopecia. "This muscular activity probably survives from a once useful defense mechanism in man's phylogenetic past, when the ears were drawn against the head for protection during attack." The authors believe that anxiety in connection with attacks on personal integrity may elicit this basic defensive attitude.

For years we have carried on personally in our absent-minded way beneath a cranial dome from which, like the Parsee's hat, the rays of the sun are reflected with more than oriental splendor. To us, in our simplicity, it has heretofore been merely a carefree bald head needing no brush and eliciting only the usual good natured "kidding." In summer it has served as a portable landing field for flies, mosquitoes, and the like, but that it was a survival "from a once useful defense mechanism" in our phylogenetic past in which our musculature slicked our ears back has never occurred to us, especially as we have never been able to wiggle our ears, thereby in our youth having lost considerable face in the presence of those who could and did practice this delightfully entertaining sport.

Our personal integrity has been at times attacked, but our defense mechanism, pinned back ears and low wind resistance on top, has worked well on the whole, now we think about it.

The authors say also "The facial expression associated with early baldness is a fixed smile which indicates hyperactivity of the occipitalis." Until now we had considered it only as an expression of good nature, but that was in our preindoctrination period. Ah, well; live and learn.—Editorial *N. Y. State J. of Med.*, May 15, 1950.

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PLACENTAL POLYP SIMULATING A CHORIONEPITHELIOMA

Report of Case

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A PLACENTAL polyp is a rare finding. Only a few cases have been reported, and these have not been diagnosed clinically but have had to await a careful study by the pathologist in order to rule out malignancy. Dorsy[3] reported a case in which the tissue was sent to the third pathologist before a definite diagnosis was obtained. In this case, as well as that reported by Hagstrom,[4] the bleeding was so severe that it threatened the patient's life. This also occurred in the patient being reported in this presentation. A patient reported from the records of the Massachusetts General Hospital[5] had severe hemorrhages but this case was also complicated by an acute and chronic salpingo-oophoritis.

According to Curtis,[1] the designation of "placental polyps" has been given to portions of placental tissue of varying size, which may be retained within the uterus for an indefinite period after an abortion or full-time parturition. If the retention be for a considerable time, the placental tissue still attached to the uterine wall becomes slowly incapsulated by concentric layers of blood and fibrin, forming the polyp tumor. On section, such a tumor will present a central nodule of more or less well-formed chorionic villi, with proliferating chorionic epithelium, covered by layer upon layer of organized blood clot and fibrin, together with round cell infiltration. Portions of trophoblast will serve to prolong the pregnancy reaction of the uterus for an indefinite period. Thus, placental polyps are productive of continuous slight uterine bleeding, and they keep the uterus in a state of subinvolution.

The following description is found in *Principles and Practice of Obstetrics* by DeLee-Greenhill[2]: "If bits of placenta or decidua do not become infected, blood is deposited upon them in successive layers, and a fibrinous or placental polyp results. They cause irregular hemorrhage until they are removed, or they become infected, break down, and are discharged piecemeal with fetid discharge and fever, sometimes with hemorrhage. The polyps may produce sufficient gonadotrophic hormone to give a positive reaction to a pregnancy test."

Report of Case

A forty-year-old woman was admitted to St. Mary's Hospital giving a history of irregular menstruation for one year, but more marked during the last five months. The bleeding had been profuse for two days, and just before entering the hospital she had passed a large amount of blood and clots which, she thought, amounted to nearly a quart.

The past history was of no special significance. She began menstruating at thirteen years of age. Periods were always regular up to one year ago, normal in amount, and caused no discomfort. She had given birth to eight children, all of whom were living and well, and had had one miscarriage three years ago. She had not been conscious of being pregnant since that time. Previous surgery consisted of an appendectomy and a thyroidectomy for a toxic adenoma.

The physical examination revealed a well-developed and poorly nourished woman, very pale. The pulse rate was 90 beats per minute. The temperature was 98.2°. The respirations were 20. The blood pressure was 102 mm. of mercury systolic and 75 mm. diastolic. She appeared older than the chronological age. A mass could be palpated in the midline of the lower abdomen, which was firm and smooth and had the contour of an enlarged uterine fundus. Vaginal examination revealed a normal cervix. The body of the uterus was about four times the normal size, firm in consistency, in good position and freely movable. Erythrocytes numbered 2,880,000, and leukocytes 6,600, per cubic millimeter of blood.

The bleeding subsided shortly after admission. She was transfused and prepared for operation, which was done five days later. Through a lower midline incision, a subtotal hysterectomy was done, and the specimen sent to the pathologist, who reported that there was evidence of malignancy, possibly a chorionepithelioma; so the cervix, fallopian tubes, and ovaries were also removed. For diagnostic purposes, a catheterized specimen of urine was obtained while the patient was still on the operating table. This gave a positive pregnancy test.

The convalescence was uneventful. The wound healed by first intention, and the patient left the hospital on the ninth postoperative day.

Pathologist's Report

Macroscopic.—A uterine fundus which measures 9.5 cm. in length by 7 cm. in transverse and 6.5 cm. in anteroposterior diameter. The specimen weighs 210

Presented before the Duluth Surgical Society.

grams. On being opened, there is a large, sessile nodule attached to the posterior aspect of the endometrium. This nodular mass presents a hemorrhagic, slightly necrotic surface, which is moderately irregular. On section through this mass, it is difficult to note a line of demarcation between the tumor mass and the myometrium. The latter, however, contains numerous large blood vessels. Further sections through this structure show some areas in which the line of demarcation between the tumor and myometrium is demonstrable. The tumor tissue is highly hemorrhagic and in some portions moderately spongy. A few foci of necrosis are present.

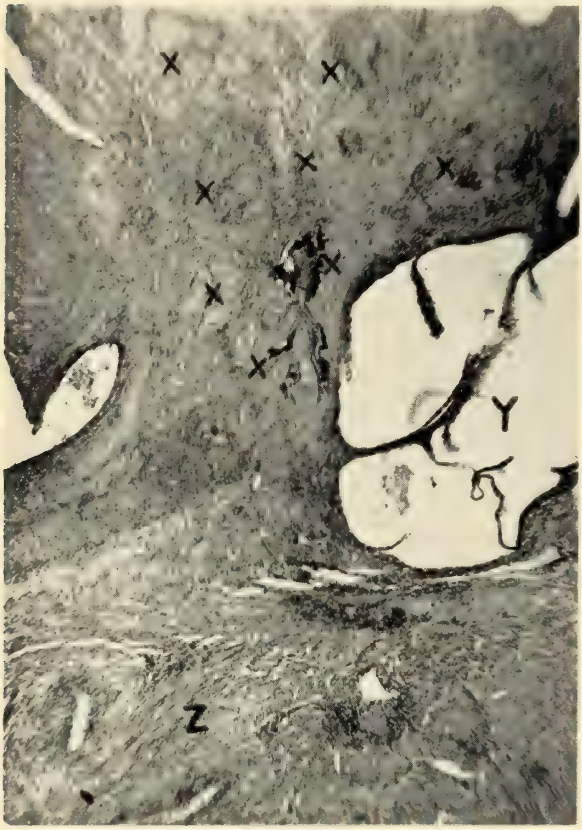

Fig. 1. Low power photomicrograph. (X's) Degenerated chorionic villi enclosed in fibrous connective tissue. (Y) Dilated atropic endometrial glands. (Z) Myometrium.

Microscopic.—Permanent sections of the tumor mass within the uterus show a border of endometrial mucosa which is average in appearance. The mucosa grades into decidual tissue which is moderately fibrous and, in part, hyalinized. There are also localized patches of hyperplasia of the large decidual cells. Along the margin of the tumor mass, there are numerous chorionic villi, some of which contain calcarious foci. Some sections show a moderately diffuse infiltration of mononuclear cells and neutrophils. The chorionic villi do not infiltrate into the muscular tissue of the uterus. In some sections, masses of partially organized decidual tissue separate the villi from the myometrium. A slight amount of trophoblastic proliferation is noted in the myometrium. Otherwise, the latter is not unusual.

Diagnosis.—Placental polyp.

Novak gives the following description: "The gross appearance of the placental polyp, together with its grumous hemorrhagic appearance is not unlike that of the chorionepithelioma, and I know of several instances in which such a diagnosis was made in spite of the total different microscopic structure of the two lesions."

Summary

A placental polyp of the uterus is a rare condition and cannot be differentiated from chorionepithelioma except by microscopic study. Both conditions produce gonadotrophic hormone which can be detected in the urine. A case is presented of a forty-year-old woman whose symptoms and whose pathological tissue, both gross and microscopic, correspond to that of the few reported cases.

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EARLY DETECTION OF DISEASE

A little arithmetic convinces one that elaborate annual physical examinations involving complicated procedures and consuming much time of physicians are not the answer to early detection of conditions such as tuberculosis, cardio-vascular disease, cancer, syphilis, and diabetes. The cost is too great and there are not enough physicians.

The answer may lie in multi-phasic rapid screening conducted at the technician level. A number of such experimental programs are now being conducted. In only a few minutes, the person being examined will have a chest x-ray (which may reveal heart abnormalities or lung tumors as well as tuberculosis and certain other lung infections), and a blood specimen will be taken for determination of the blood sugar level and presence of syphilis antibodies. Perhaps other serologic tests will be made. Although physicians will be needed to interpret the tests, the tests themselves will be conducted by technicians.

Such a program will fail completely unless the medical profession is made to understand thoroughly the philosophy of the program, namely, that it does not take the place of the physician in making a diagnosis. In fact, no diagnosis will be made. Only suspected abnormalities will be screened out in this first procedure; the diagnosis will be made later in the physician's office and, it is hoped, at a stage when the physician may be more effective in administering treatment than would have been the case if the patient had waited until the development of full-fledged symptoms forced him to consult a physician.—James E. Perkins, M.D., *Bull. Nat. Tuberc. A.*, January, 1950.

History of Medicine In Minnesota

MEDICINE AND ITS PRACTITIONERS IN OLMSTED COUNTY PRIOR TO 1900

NORA H. GUTHREY
Rochester, Minnesota

(Continued from May issue)

Housen H. Clifton, "cancer doctor," was born in Kentucky in 1830. After the outbreak of the Civil War he enlisted, on August 2, 1862, in Company H of the 72nd Indiana Volunteer Regiment of Infantry and received his discharge on June 26, 1865. In 1866 with his wife Permelia Seeley Clifton and his son William W. Clifton, then eighteen years old, he came to Rochester Township, Olmsted County, and settled on a farm in Section 8, four miles southwest of Rochester on what is still known as the Salem road. Leonard stated that Permelia Clifton also had served her country during the Civil War, as a nurse. In 1887 Dr. Clifton became a member of the local Custer Post of the Grand Army of the Republic, of which for a time he was post surgeon.

What Dr. Clifton's medical training had been is not known; although he treated patients for "la grippe" and other ailments, he concentrated on a domestic remedy, since described as an escharotic agent, for skin cancer. For many years he was called locally the "plaster doctor" or the "cancer doctor." Patients came to him from considerable distances, one at least from Lake Benton, Minnesota. In 1886 recommendations of Dr. Clinton's painless, nonsurgical cancer cure began to appear in the Rochester newspapers and for seven years thereafter there were published also numerous news items about patients he had treated for cancer of the head, face or breast. The most detailed statement, on October 22, 1886, in the *Record and Union,* was as follows:

> Dr. Clifton of Rochester has been for the past sixteen years experimenting on a remedy to cure cancers. He claims to have finally succeeded in producing a remedy that takes out cancers in from seven to fourteen days. All he does is to paint the affected part and the medicine does the work. It does not affect the sound flesh, but destroys the fungus growth of the cancer and it dries up and is easily removed.

Another note, on another subject, was: "Dr. H. Clifton of Rochester has a genuine madstone. Should any one be unfortunate enough to be bitten by a mad dog, the doctor would be glad to let him use the stone."

Housen H. Clifton died suddenly on September 21, 1893, in his sixty-fourth year, from overexertion in fighting a fire which destroyed his home, a few miles from Rochester, on that day. He was buried from the Methodist Episcopal Church of Rochester under the auspices of the Grand Army of the Republic. After his death, his son, William W. Clifton, continued the manufacture and use of the cancer remedy.

William W. Clifton, who was born at Fountain City, Indiana, on December 9, 1848, came to Rochester Township, Olmsted County, in 1866 with his parents, Housen H. Clifton, farmer and medical practitioner, and Permelia Seeley Clifton. Leonard stated that William Clifton became an ordained minister of the Methodist Episcopal Church but never followed the calling; that he studied medicine under his father and at the Metropolitan School of Physicians and Surgeons (Metropolitan Medical College, Chicago?), from which he was graduated; that he was a Republican "with a strong leaning to prohibition and other reforms tending toward the general good of the country." After his father's death he succeeded to the practice in treatment for skin cancers, as noted, and until the early nineteen hundreds his card appeared in Rochester newspapers: "Cancers cured without cutting. Dr. Clifton's Celebrated Cure. Call on the doctor. W. W. Clifton, Rochester, Minnesota." Subsequently, it is said, he became a veterinarian.

William W. Clifton was married to Miss Alti Wagoner, daughter of respected pioneer settlers who came to New Haven Township in 1856; one of Mrs. Clifton's brothers, Joseph H. Wagoner, was for many years a successful dealer in organs and pianos in Rochester. Dr. and Mrs. Clifton had four children, Nettie, Walter, George and Sadie. Nettie G. Clifton, a graduate of Hamline University, was a teacher in the public schools of Minnesota and North Dakota. She was married, in September, 1902, at the home of her parents, on the old Clifton homestead, to Professor Earl G. Berich, a biologist, of Fargo.

Alexander Brodie Cochrane, graduate of the Minnesota College Hospital on March 24, 1882, came to Rochester, Minnesota, on August 1, 1883, as assistant physician to Dr. J. E. Bowers at the Second Minnesota Hospital for Insane. He was the third physician to be appointed to the hospital staff and was successor to Dr. W. A. Vincent, who in 1881 came as the first junior physician appointed in the institution. On October 11, 1883, under the new state law to regulate medical practice, Dr. Cochrane received certificate No. 46 (R).

Dr. Cochrane's musical ability added to his value as physician: The hospital choir, made up of employes and patients, under the direction of Dr. Cochrane as organist, furnished the music at special services and holiday celebrations. His name has not appeared in connection with a local medical society, for the reason that the Olmsted County Medical Society, inactive at that time, was not reorganized until December, 1885, after Dr. Cochrane had gone. In newspaper accounts Dr. Cochrane was mentioned as one of an operating team, with Dr. J. E. Bowers, who assisted Dr. W. W. Mayo in removal of ovarian tumors.

Dr. Cochrane resigned his position as assistant physician early in December, 1884, and on December 10, after a week's visit with friends in Chicago, he sailed for "his old home in England." He was succeeded at the state hospital by Dr. Homer Collins.

E. G. Cole, professedly a skillful oculist, came to Rochester, Minnesota, early in 1862 for the purpose, he said, of restoring "the blind to sight," no cure, no pay, and remained probably several months. His headquarters were at J. S. Woodard's drugstore. The chief note concerning him was under "Common Council Proceedings" in the *Rochester Republican:* Dr. Cole's bill for services to a certain indigent patient on whose eyelid he had operated, was taken up for reconsideration and it was decided to appropriate fifteen dollars, to be paid when cure should have been effected. Dr. Cole's professional cards in the local newspapers were typical of the notices used by the numerous traveling medical fraternity of the time.

J. C. Cole (1813-1890), an honorable and benevolent man, was the first physician, surgeon and druggist of the village of Marion, Marion Township, Olmsted County, and was in active practice there from 1856 into 1866, under the rigorous conditions of pioneer life.

Born in Butternuts, Otsego County, New York, on January 5, 1813, J. C. Cole was a son of Mr. and Mrs. Richard Cole, who were the parents of nine children, eight sons and a daughter. In 1836 J. C. Cole traveled west to Illinois, where he spent twelve years before removing to Wisconsin. At Plainfield, Will County, Illinois, he was married on September 7, 1848, to Mary Ruth Dupuy; of this marriage there were three children, William, Mary and Helen. Mrs. Cole died on December 10, 1852, and Helen on the following day, both at the family home in Rosendale, Fond du Lac County, Wisconsin. Two years later Dr. Cole traveled from his Wisconsin home to Butternuts, New York, where on January 18, 1854, he was married to Mrs. Almira E. Safford. Of the second marriage there was one child, C. J. Cole.

Dr. Cole first arrived in Marion, Minnesota, on April 11, 1856. After taking up a government claim, he went back to Wisconsin for his family and returned with them one month later. To the settlement, which then comprised a small tavern, a store, a scattering of cabins and the groundwork of a schoolhouse he added a new residence and a drugstore. For a few months in 1863 Dr. Cole had an office on Broadway in Rochester, for the practice of medicine, it was announced, on the most scientific principles of the day. A newspaper note of 1860 indicates that he made an occasional trip east for professional study.

In 1866 there occurred the first of many attacks of the nervous and mental disturbance that made Dr. Cole's hospitalization necessary at intervals the remainder of his life. He died in Minneapolis on January 6, 1890, survived by three children, Mary and William, and C. J. Cole, of Marion, and was buried at Marion; his funeral services were conducted by the Reverend Frank Doran, of Rochester. Mrs. Cole had died in Marion on December 6, 1872.

Two of Dr. Cole's brothers were early settlers in Minnesota: B. M. Cole, of Pleasant Grove, and Dr. G. H. Cole, a dentist of Marion and sometimes of Rochester, from 1859 to 1866. Later Dr. G. H. Cole practiced dentistry in Owatonna, Winnebago City and, after 1882, in Mankato. He was born on May 24, 1832, at Butternuts, New York; was married on April 17, 1861, to Clementine E. Rossman of Rochester; served in Company D of Brackett's Battalion of Cavalry during the Civil War, from January 5, 1864, until he was mustered out in March, 1865, as sergeant, because of disability. He died in Mankato on January 1, 1885.

Homer Collins (1859-1949) was the fourth appointee, the third to serve as the assistant physician on the staff of the Second Minnesota Hospital for Insane at Rochester, succeeding Dr. Alexander Brodie Cochrane late in 1884.

The son of Nelson and Isabella Collins, Homer Collins was born in 1859 in Perinton Township, Monroe County, New York, just ouside the little city of Fairport. Orphaned by the death of his mother when he was a month old and the death of his father less than a year later, he was brought up by his paternal grandfather and two aunts, sisters of Nelson Collins.

He received his early education in the public schools of Rochester, New York, and his academic courses at the Rochester Free Academy and at Cornell University; from Cornell he was graduated in "natural history," and received the cash prize awarded in the department of Dr. Law. In 1882 he entered the College of Physicians and Surgeons of Columbia University, from which he was graduated in 1884 with the degree of doctor of medicine. After taking his degree, he held a service of several months at the Presbyterian Hospital of New York; attended lectures at the New York Eye and Ear Infirmary, and at the New York Ophthalmic and Aural Institute (after 1913 the Hermann Knapp Memorial Eye Hospital), under the instruction of Dr. Herman Knapp, one of New York's great ophthalmologists and otologists; and took several courses of lectures at the New York Post-Graduate Medical School.

On December 1, 1884, Dr. Collins began his work at the state hospital in Rochester, Minnesota. The physicians of the hospital were an important part of the city and Dr. Collins was no exception. He made many friends and commanded the respect of fellow physicians. On occasion he was one of a varying group, which often included Dr. J. E. Bowers, superintendent of the state hospital, who assisted Dr. W. W. Mayo in performing surgical operations of special interest.

Dr. Collins was a charter member of the Olmsted County Medical Society when it was reorganized in December, 1885, and he became a member of the Minnesota State Medical Society. On April 15, 1887, he received his state license No. 1359 (R) to practice in Minnesota. When he resigned his position at the state hospital in October, 1889, to enter private practice, he was honored by the officials and the attendants, who presented him with a diamond ring and a gold-headed cane. On leaving Rochester, Dr. Collins returned to Rochester, New York, with the idea of entering practice there, but by the early autumn of 1890 he had decided on the Middle West, and after considering Superior, Wisconsin, as a location he settled in Duluth.

In June, 1895, Homer Collins was married to N. Gertrude Sloan of Duluth. Dr. and Mrs. Collins had four children, a son, Homer Collins, Jr., and three daughters, Cordelia, Gertrude and Patricia, all of whom, in 1945, were living in Duluth. Of the four grandchildren, one was in service in the United States Army Air Forces during World War II. (Dr. Collins died on July 31, 1949, at the Duluth Hospital, aged ninety years.)

Discussion of Dr. Collins' long and distinguished professional career in the special fields of ophthalmology, otology, rhinology and laryngology belongs primarily to the history of medicine in Duluth and St. Louis County.

Franklin Judson Cressy, born in 1849, was the son of Mr. and Mrs. F. C. Cressy, who long were respected residents of Olmsted County.

Details of Dr. Cressy's early life and education are lacking. On September 2, 1910, however, he was referred to by the *Olmsted County Democrat* as an "old time resident of Rochester and a grade school pupil here in the Central School the first year it was opened" (1868). He received the degree of doctor of medicine from the College of Physicians and Surgeons of Keokuk, Iowa, in 1877. Earlier, in April, 1876, the *Rochester Post* had referred to him as Dr. Cressy and cited a case in which he had given aid. In March, 1877, this newspaper commented as follows: "The Howard Lake, Stearns County, Minnesota, paper says that Dr. F. J. Cressy, formerly of this city, has entered into partnership with Dr. Knowles of that village for the practice of his profession. Dr. Cressy is a young man of superior qualification and good character and we wish him much success in his new field of endeavor."

Well before 1890 Dr. Cressy was established in practice at Granite Falls, Yellow Medicine County. His state license, No. 581 (R), was issued on December 31, 1883. He was a member of medical societies, county, state and national; his name appeared in the directory of the American Medical Association from 1906 to 1918, inclusive.

W. J. Conan, physician and surgeon, came from Fond du Lac, Wisconsin, to Rochester, Minnesota, in January, 1879, and for about five months, as indicated by his professional card published in the *Rochester Post,* practiced medicine in the city. His office, advertised as open night and day, was over a millinery store, in H. A. Brown's block, on Broadway.

Edwin Childs Cross (1824-1894), one of the earliest and best educated of the pioneer physicians and surgeons of Olmsted County, came in May, 1858, from Brattleboro, Windham County, Vermont, to Rochester, Minnesota, which then was a frontier settlement. His younger brother, Dr. Elisha Wild Cross, had visited Rochester two years earlier and on his return east had described the growing community and its need for physicians. There were in Rochester in 1858 a few inactive practitioners, Dr. M. T. Perrine, the earliest, Dr. L. H. Kelley, Dr. J. N. McLane and Dr. C. S. Younglove, and Dr. I. H. Bardwell, who in 1859 removed to Pleasant Grove. By 1860 Dr. Cross was so well established that he sent for his brother to join him in practice. Although there was a difference of only four years in their ages, Dr. Cross was always called "Old Dr. Cross," and Dr. Elisha, "Young Dr. Cross." The partnership was interrupted in December, 1861, when Dr. E. W. Cross became a surgeon in the Union Army. In later years, it is said, although the brothers consulted each other professionally and part of the time shared offices, in the main they practiced independently.

Edwin C. Cross, born on April 6, 1824, at Bradford, Vermont, was the eldest living child of Peter Cross (1785-1858), farmer and well borer, and his second wife, Dorcas Wild Cross (1797-1839), both of English descent and early settlers in New Hampshire. Peter Cross was the son of Stephen Cross and Margaret Bowen Cross, both of whom were born in the United States. The sisters and brothers of Edwin C. Cross, all of whom, in 1946, were long since dead, were: Abigail W., Elisha Wild, Amos E. (died in Rochester in 1866), Sarah G. (Mrs. Ed. Elliott, of Rochester), Henry and Mary L. Cross. By the first marriage of Peter Cross there were the following half brothers and half sisters: John G., Caroline M., Michael C. M., Dolly G. and Elbridge O. Cross.

At the age of fourteen years Edwin C. Cross decided to become a physician, and in the next eight years, earning his way, he acquired an education, academic and scientific. After early years in common schools and at Bradford Academy, he finished his classical course at Dartmouth College; later, after completing a year's study under Dr. John Poole, of Bradford, an alumnus of the medical department of Dartmouth, he returned to the college to begin his formal medical course. There are in the possession of Miss Louise Cross, granddaughter of Dr. Cross, his cards of admission, in 1844, to classes in surgery, obstetrics, anatomy and physiology, on the recommendation of the New Hampshire Medical Society. Subsequently he attended lectures at Castleton Medical College, in Castleton, Vermont, at the Vermont Medical College, in Woodstock, and at the "College of Physicians and Surgeons" (College of Medicine and Surgery?), in Philadelphia. In 1846 he was graduated in medicine from Norwich University, in Norwich, Vermont.

Dr. Cross had an initial practice of four years in Leyden, Massachusetts, was three years in Guilford, Vermont, and nearly four years in Brattleboro. He was married on October 1, 1849, at Charlemont, Massachusetts, to Fanny E. Marcy, who was born at Coleraine, Massachusetts, on August 15, 1827. Fanny Marcy was a teacher of French at Mount Holyoke Female Seminary (after 1893 Mount Holyoke College), and was the youngest of a family of eleven children, many of whom distinguished themselves in the fields of letters, theology and science; her brother, Oliver Marcy, LL.D., in the late eighteen seventies was acting president of Northwestern University. Dr. and Mrs. Cross, after the death of their first child and, a few weeks later, loss of their home by fire, set out early in 1858 for Minnesota.

For thirty-four years in Rochester, Olmsted County, Dr. Cross, cultured, progressive, of many interests, was an influential physician and citizen. Tall, heavy and muscular, he was dark-complexioned, had black hair, heavy brows over deep-set eyes, and wore a mustache and chin whiskers. Handsome and dignified as a young man, in later decades he was bowed and rugged, of stern appearance, and of sterner manner which, however, belied his heart. Dr. W. J. Mayo once said of him, "The Old Doctor certainly had a stern exterior, but I have seen him hand a man who was out of luck a thousand dollars and say, 'Here, start over again'." His patients relied on him, his family were devoted to him.

Although, as his grandson has said, he came to the new country "with his two hands, and for professional aids a few surgical instruments, quinine, chloroform, laudanum or opium, castor oil, and whiskey for a heart stimulant," he soon achieved well-earned and increasing prosperity. Practicing in an era marked by inconvenience and hardship, Dr. Cross in saddle, wheeled vehicle, or sleigh, as season demanded, made the long laborious trips throughout the countryside that his extensive practice called for, and gave aid in all the illnesses and accidents peculiar to the times and region. Venerable citizens in various communities have recalled of him and his brother, "The Crosses did all the doctoring in our neighborhood." In emergency he was quick and resourceful, in daily general practice his methods of treatment were perhaps less drastic than those of some of his colleagues.

In his earliest years in the county there were yet Indians of dubious friendliness in the community. Dr. Cross had no fear of sober Indians because they knew and respected him as a "medicine man," but for possible defense against drunken Indians of clouded judgment he carried on saddle or in rig a sawed-off, muzzle-loading, single-shot rifle. In later years he used the gun to shoot fish in the Zumbro River; there was so much metal between the bore and the periphery that he could fire the gun with its barrel under water without danger of its exploding.

Educated as a member of the regular profession in conservative schools, Dr. Cross while in the East became interested in homeopathy, and when he arrived in Rochester he announced himself through the local press as a homeopathic and hydropathic physician and surgeon. For several years after 1860, part of the time in partnership with his brother, he had the Rochester Infirmary, which served as his headquarters, and there made available the homeopathic pharmacopoeia and a variety of soft water baths. By 1867 he had returned to the regular school.

Dr. Cross had a long and honorable record in official medical organizations. A founder of the early Olmsted County Medical Society on April 15, 1868, he was prominent in its activities, and when, on December 4, 1885, the society was reorganized formally, he was a charter member. On June 16, 1869, he became a member of the Minnesota State Medical Society, soon after its reorganization, and well into the eighteen eighties he was a faithful worker, as correspondent, member of committees, and delegate to meetings of the American Medical Association. His Minnesota state certificate to practice, No. 905 (R), was issued on May 9, 1884.

When Dr. Cross arrived in Rochester in 1858, existing conditions of health and sanitation in the city left much to be desired. Presently the newspapers began to print graphic descriptions of straying livestock, muddy, slimy streets, alleys blocked with refuse, and of polluted wells. In 1864 Dr. Cross became a member of the local board of health and served on it, often as chairman, for more than twenty years. After 1872, in co-operation with the state board of health, he gave detailed reports on outbreaks of disease in surrounding rural districts, and during the smallpox epidemic of 1876-1878 acted as an official vaccinator.

A student of medicine and allied sciences as well as of literature, Dr. Cross possessed a fine library and subscribed to the current medical journals, which he read faithfully. Frequently he was out of town for several days on a series of professional calls in the country,—word would be left at one place for him to come on to another,—and on his return home there would often be awaiting him an accumulation of new medical literature. In order to keep himself up-to-date, it was the doctor's custom on such occasion to retire to his room with books and journals, a pitcher of milk and a plate of bread, and by the light of a student lamp at his bedside, to read all night. As a preceptor he contributed to medical education. Perhaps the first medical student to come under his instruction was his brother Elisha, whose education he sponsored and directed in the late forties in Massachusetts and Vermont. In Rochester, among the young men who studied under him and his brother were Sylvester L. Bedal, from Eyota, Edwin D. Stoddard, of the vicinity of Rochester, and William A. Vincent, an easterner, later of Iowa.

Although Dr. Cross did not seek civic office, and on one occasion declined the nomination for mayor of Rochester, he was active in movements for public welfare. When the Olmsted County Volunteers were organized at the beginning of the Civil War, he was delegated to tender the services of the company to the governor of the state; and in the offices of the Drs. Cross were held organizational meetings of Sanborn's Guards (Oronoco Home Guards). Dr. E. C. Cross was one of the first examiners appointed when, in 1862, the United States Bureau of Pensions was instituted in Minnesota. In March, 1865, he succeeded Dr. W. W. Mayo as surgeon on the Board of Enrollment of the First Congressional District. It is told of Dr. Cross that he was clever in detecting malingerers, especially those who pretended to be deaf. He would listen sympathetically and would seem to be convinced. As such an applicant for exemption was turning to leave the office, Dr. Cross would ring a silver half dollar down onto the floor; two thirds of the "deaf" applicants on whom this device was tried whirled at the sound. In later years Dr. Cross was medical examiner of candidates for training at the United States Military Academy at West Point, was often called as expert witness in medico-legal cases, and was examiner of persons up for commitment to the state hospital for insane at St. Peter and, after 1879, at Rochester.

He was interested in city real estate to the extent, in 1869, of improving a section of northeast Rochester with a group of new cottages, and, in 1878, together with leading business men, of building a large brick block on Broadway in which he and his brother had offices. His chief hobby, however, was a fine farm, "Chesterland," near Chester in Marion Township, stocked with high-grade cattle, where he perfected a model dairy, a rare enterprise in that time. He was influential in organizations for the furtherance of improved agriculture, horticulture, dairying and buttermaking. In 1882, when he welcomed a convention of the Butter and Cheese Association, at its first annual meeting, he gave a keen analysis of farming, dairying and stockraising in the region; he stressed the importance of converting grain farms into livestock farms, and expressed the belief that the time was at hand when many of the grain elevators on the line of the railroads must give place to stock yards, and that cattle cars must become more common on the great lines of transportation from the Northwest. Dr. Cross brought in from Kentucky fine shorthorn beef cattle, raised improved strains of sheep, bred beautiful Morgan horses as well as horses from famous racing and trotting stock, one of which was the well-remembered Ada Wilkes. He did not race his horses, but privately he tried to beat the track record and often did; when in 1887 he bought from Eleazer Damon, pioneer jeweler, a stop watch for $170, a local newspaper reported the purchase and stated, "A stop watch is getting to be a necessity for all the breeders of fast horses in the city." (In 1947 this watch, still in the possession of the family, was in good condition.) Dr. Cross's sulky was a familiar sight about Rochester, as were his carriages and, in winter, his cutter and his handsome double-seated sleigh generously equipped with buffalo robes. It is said that he brought into the county the first Gordon setters seen here and that Irish setters were another of his favorite canine breeds. One Irish setter, Denny, he trained to ride with him in winter, the dog usually lying across the doctor's feet as a footwarmer, but sometimes taking a turn as driver; on signal Denny would sit with his head resting on the doctor's knee; Dr. Cross would arrange the lines and place them in the dog's mouth, and Denny would hold them firmly while the doctor took time out to warm his hands.

Dr. Cross and his brother in the seventies were among the founders of the Sportsman's Club and the Rifle Club of Rochester. And when the Marrowfats and the Stringbeans, social groups of business and professional men, were organized for the formation of baseball teams that were friendly rivals, the Drs. Cross, each weighing more than 200 pounds, qualified for the Marrowfats.

Dr. Cross was a Republican, a supporting member of the Universalist Church, an early member of the Masonic Lodge in Rochester (once Worshipful Master), holder of the Thirty-second Degree of Masonry, and an officer in the Grand Commandery of Knights Templar. He traveled extensively, combining clinical visits and attendance at medical conventions with conclaves of fraternal organizations.

On the morning of July 4, 1894, occurred the tragic accident that ended the life of this outstanding physician and citizen. Dr. Cross was driving a team of spirited young horses on Main Street and as he neared the southern end of the street he passed some boys who were out to celebrate the Fourth. The boys waited until the team had gone a half block or more before they threw some lighted firecrackers into the road, but the horses heard the explosion and started to run. Dr. Cross succeeded in quieting the horses and pulling them to a dead stop, when at another explosion they lunged and both of the bits broke. In those days Main Street curved to the left at the southern end where a road came in from the right. While trying to guide the running horses to the left, Dr. Cross attempted to swerve them slightly to the right to avoid a pedestrian; the horses swung sharply right, the buggy struck a large tree, throwing the doctor out against a board sidewalk that stood eight or ten inches high, and on into a picket fence that paralleled the walk. Although his injuries were mortal, severe cuts about the head, broken ribs, a shattered femur and a mangled thigh, Dr. Cross remained conscious to the end of his life and told his family the details of the accident. He died on the evening of July 5, 1894. At his funeral services Rochester, and the Olmsted County Medical Society as a group, paid him tribute.

Edwin Childs Cross was survived by his wife, Fanny Marcy Cross, and by three children: Anna Dorcas (1860-1937), Mary Almira (Mrs. Fred. C.) Van Dusen (1863-1938), and John Albert Grosvenor Cross (1870-1928). Three sons had died young: Edwin (1855-1857, Frank Dean (1857-1866) and Edward (1868-1869). The death of Mrs. Cross occurred on September 21, 1901. In 1946 there were living twenty-five descendants of Dr. and Mrs. E. C. Cross.

Elisha Wild Cross (1828-1899), younger brother of Edwin Childs Cross, came to Rochester, Minnesota, as a visitor in 1856 and as a resident in April, 1860, when he joined his brother in the practice of medicine and surgery. It was then that he received the title "Young Dr. Cross," by which he thereafter was distinguished.

Born at Bradford, Vermont, on January 31, 1828, Elisha W. Cross obtained his early education at Bradford Academy and at the Wesleyan Seminary at Wilbraham, Massachusetts. His first medical training he received under his brother's preceptorship, and subsequently he took medical courses at the Castleton Medical College, in Castleton, Vermont, and at the Vermont Medical College, in Woodstock, from the latter of which he was graduated with the degree of doctor of medicine in 1851. In that year he began a five years' medical practice in Reedsborough, Vermont, after which he practiced in Guildford Center, Vermont, until he came with his wife and two children to Rochester. He was married on October 5, 1849, at Bradford, Vermont, to Martha Peckett, who was born in that village on June 24, 1829.

In December, 1861, Dr. Cross was appointed Assistant Surgeon of the Fourth Regiment of Minnesota Veteran Volunteers in the Union Army; on August 9, 1863, he was promoted to major and surgeon and so served until he resigned, because of impaired health, on December 22, 1864. Throughout his service, which took him into famous battles, among them Iuka, Vicksburg, Chattanooga, Lookout Mountain and Altoona, and on Sherman's march to the sea, his record was one of efficiency and skill enhanced by kindness to the sick and wounded and won him their gratitude and affection.

Beginning early in 1866, Dr. Cross, although in close association with his brother, Dr. E. C. Cross, practiced independently of him. For a time Dr. E. W. Cross had his office at his residence on East Fifth Street (East Center Street). His was the heavy general practice, in town and country, of pioneer times. There is record that in the seventies he and Dr. W. W. Mayo together performed various major surgical operations and that in December, 1876, they entered partnership, sharing three offices over Geisinger and Newton's Drugstore on Broadway. This association ended in June, 1878.

Dr. E. W. Cross, like his brother, was tall, dark and strongly built; Dr. Elisha wore a mustache, minus the chin whiskers that his brother affected, and in later years, as ill health forced him into inactivity, he became corpulent. Although each brother had his special bent, the careers of the two, in profession, avocations and recreations, were parallel. "Young Dr. Cross" was a Mason, a member of the Knights of Honor and of other fraternal organizations and of the Military Order of the Loyal Legion of the United States, a supporting member of the Universalist Church, an agriculturist, a founder of the Minnesota Horticultural Society, and a raiser of fine horses and cattle on his large farm "Heathiola" near Chester. Active in all that went to improve the city of Rochester, he was once commissioner at large, long a school commissioner and for many years president of the board of education. For even longer he was the able president of the Rochester National Bank and a director of the Union National Bank.

(To be continued in the July issue.)

President's Letter

DR. POTTS WOULD BE SURPRISED

The excellence of Minnesota medical conventions is an established fact. We look forward to the sessions each year, well aware on the basis of past experience that we will attend stimulating scientific meetings and round-table discussions, that we will be renewing friendships with colleagues that we see, perhaps, only on this once-yearly basis, that we will have an opportunity to view scientific and commercial exhibits of great interest and value.

The 1950 convention was no exception. For myself, and I think I speak for all the physicians who attended, it was an outstanding conference.

But Dr. Thomas Potts would have been surprised if he had been there.

For him, the 1950 convention would have been amazing, far beyond the reach of his imagination when, in 1853, he and nineteen other pioneer Minnesota physicians held the first and organizational convention of the Minnesota State Medical Association.

This little band of professional men that, today, would represent, numerically, only one of our round-table discussion groups, has given us a great heritage—one of the most tangible evidences of which is the annual convention, where learning and recreation are balanced to prepare and refresh us for the arduous professional duties that the coming year brings.

It was a pleasure for Duluth physicians to be hosts to so many of our friends from all over the state and to feel that our efforts, in a small way, helped to carry on the noble traditions established by Dr. Potts and his fellow practitioners nearly a century ago.

F. J. Elias.

President, Minnesota State Medical Association

Editorial

CARL B. DRAKE, M.D., *Editor;* GEORGE EARL, M.D., HENRY L. ULRICH, M.D., *Associate Editors*

THE VDRL TEST FOR SYPHILIS

BEGINNING July 1, 1950, the laboratory of the Minnesota Department of Health will report the quantitative VDRL blood and spinal fluid tests for syphilis. The articles by Drs. Kimball and Bauer and by Dr. Lynch explaining the laboratory and clinical aspects of this new serological test appear in this issue. Physicians would do well to read both articles in order to be able to correctly evaluate the new serologic report.

Although there are advantages to the quantitative reporting of the positivity of the VDRL test, it does not follow that the height of the titre correlates with the clinical activity of the disease. On the other hand, the higher the titre, the stronger the serological evidence is for supporting the diagnosis of syphilis. Further, the height of the titre gives no indication of the likelihood of a positive spinal fluid or a paretic curve in the colloidal gold test.

The desirability of a repetition of the test before a diagnosis of syphilis is made still holds. Other factors, such as the presence of infections mononucleosis and smallpox vaccination, may produce false positives. When the serological test is questionable, two full vials of blood should be submitted in order that all the tests may be run. As the new test requires more blood, one would be playing safe in submitting a full vial on each occasion.

INDUSTRIAL COMMISSION REPORTS

OUR ATTENTION has been called by the Industrial Commission of Minnesota to the fact that while most physicians comply with the law in the matter of reporting workmen's compensation cases to the Commission promptly when so requested by the Commission, a few do not. These reports are necessary in order that the injured employe may receive the quick and speedy remedy by way of compensation and other benefits provided by statute. Such offending physicians are not only doing an injustice to their patients, but they are also violating the laws of the State of Minnesota and are subject to a civil penalty of $50.00 for each such failure to report.

The law as it applies to the reporting of Workmen's Compensation Cases to the Industrial Commission is reproduced verbatim below. It is the wish of the Minnesota State Medical Association and the Minnesota State Board of Medical Examiners to co-operate with the Industrial Commission of Minnesota in having physicians make these reports as provided by law. The Industrial Commission has been requested to furnish the names and addresses of physicians who are repeatedly in violation of the law referred to, to the Minnesota State Board of Medical Examiners for disciplinary action such as is used for failure to comply with the laws of the State regarding the reporting of births and deaths.

The Industrial Commission seeks first of all the co-operation of *all* the physicians in the State in this matter. If the report is not forthcoming, the names of the offenders will be referred to the Minnesota State Board of Medical Examiners for disciplinary action.

DUTY OF PHYSICIANS IN REPORTING WORKMEN'S COMPENSATION CASES TO THE INDUSTRIAL COMMISSION OF MINNESOTA

"Section 176.32 * * * Every physician or surgeon who shall examine, treat, or have special knowledge of, any injury to any employe compensable under this chapter, shall, within ten days after receipt of any request therefor in writing made by the industrial commission, report to the commission all facts within his knowledge relative to the nature and extent of any such injury and the extent of any disability resulting therefrom, upon a form to be prescribed by the commission.

It is hereby made the duty of the commission, from time to time and as often as may be necessary, to keep itself fully informed as to the nature and extent of any injury to any employe compensable under this chapter, and the extent of any disability resulting therefrom, and the rights of such employe to compensation; to request in writing and procure from any physician or surgeon examining, treating, or having special knowledge of any such injury, a report of the facts within his knowledge relative thereto.

Any employer or physician or surgeon who shall fail to make any report required by this section, in the manner and within the time herein specified, shall be liable to the State of Minnesota for a penalty of

$50.00 for each such failure, and such penalty shall be recovered in a civil action brought in the name of the state by the attorney general in any court having jurisdiction thereof, and it shall be the duty of the commission when any such failure to report occurs to immediately certify the fact thereof to the attorney general, and upon receipt of any such certification the attorney general shall forthwith commence and prosecute such action. All penalties recovered by the state hereunder shall be paid into the state treasury.

No such report or part thereof, nor any copy of the same or part thereof, shall be open to the public, nor shall any of the contents thereof be disclosed in any manner by any official or clerk or other employe or person having access thereto, but the same may be used upon the hearings under this chapter or for state investigations and for statistics only, and any such disclosure is hereby declared to be a misdemeanor and punishable as such.

For the purpose of determining the merits of a compensation claim the commission may permit examination of its file in a compensation case by an attorney at law upon the furnishing to the commission written authorization therefor, signed by the employe, his dependent or dependents, the employer or insurer, as the case may be.

Any employer or insurer or injured employe shall, upon request of the commission, file with the commission all medical reports in the possession of such employer or insurer having any bearing upon the case or showing the nature and extent of disability; provided, that duly certified copies of such reports may be filed with the commission in lieu of the originals."

Section 176.32 Minnesota Statutes for 1945.

GEORGE E. FAHR

On June 15, 1950, Dr. George E. Fahr is retiring from the Medical Staff of the University of Minnesota Medical School. For years he has been in charge of the Medical Department at the Minneapolis General Hospital, and the great demand for a residency in his department attests to his ability as a teacher. In his knowledge of the heart and electrocardiography, Dr. Fahr has no peer. He was associated with Dr. Einthoven at the University of Leyden in developing the first electrocardiograph, and the first electrocardiogram taken in this country was taken by Dr. Fahr on his father. Through the years, Dr. Fahr has kept a buoyancy and enthusiasm that is the desire of all medical men. In the future, he plans to do medical consultation in private practice, the Veteran Hospital and also in the Minnesota medical care program with Dr. Ralph Rossen.

In years past, retirement from a teaching post meant the word in its literal sense. Now, such retirement means freedom from administrative responsibilities, time to engage in research, and sharing more fully clinical experience and judgment. We know Dr. Fahr plans to retire in this sense.

THE SAME GUY PAYS

One curse of the Welfare State is the illusion it creates that the people are getting something for nothing.

Take Britain's National Health Service. It was much advertised as the "free" health plan. The British people were to be able to visit the doctor, the dentist, or the wig maker and have their needs cared for without paying anything except a nominal "insurance" premium.

Obviously these payless visits had to be paid by someone but the complications of a 1950 model government budget often obscure where the money comes from Budget developments in Britain the past couple of weeks however, shed some light on how these "free" services are financed.

On April 18 Chancellor of the Exchequer Cripps presented to the House of Commons the government's budget for the year which began April 1. The major item of increased spending was for socialized medicine. The amount of that increase was about $363 million, bringing the total to approximately $1 billion for the new fiscal year.

To keep revenues up with expenses, Sir Stafford proposed among other things that the gasoline tax be raised to 20 cents a gallon, from 10 cents, and that a 33⅓ per cent levy be imposed on the sale of trucks.

Much of the burden of those taxes would fall on truck operators. So the beneficiary of health service might say: "That's fine, let the truck owner pay for it."

But it doesn't work that way, as our Mr. Evans reported in this newspaper's "London Cable" yesterday. He says: "The butcher, the baker and the highway freighter are all racing to shift new transport costs to the consumer. They contend they have no other choice after Chancellor of the Exchequer Cripps' double-barreled budget attack on road travel—a 100 per cent increase in the gasoline tax and a new 33⅓ per cent purchase (sales) tax on commercial vehicles."

Meat traders want to impose an extra delivery charge a subterfuge for a rise in the price of meat which is government-controlled. Green grocers are ready to raise their prices. Fruit and potato men talk of a 10 per cent price rise. Bakers are stirred up, too.

So the higher cost of "free" medicine will go right on the consumer's grocer bill. He may not have to pay the doctor, but he pays, just the same.—Editorial, *Wall Street Journal,* May 2, 1950.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

POLLS SHOW OPPOSITION TO SOCIALIZED MEDICINE

There is mounting evidence that the public nderstands the dangers in a scheme of govern- ent medicine. The Washington office of the merican Medical Association reports that over- helming public opposition to compulsory health surance has been registered in three polls con- ucted by Representatives.

Representative J. Harry McGregor of Ohio. mpling his district on this and other subjects, ound that only 10 per cent of the people wanted ocialized medicine. The vital question which Mr. IcGregor asked on his questionnaire was, "Do ou favor any type of federal legislation placing e medical and dental profession and operation f our hospitals under Federal control?" The ashington office reports the results:

> "Two thousand replies were received. Mr. McGregor does not give the numerical totals but lists the replies as ten per cent yes, 90 per cent no. A breakdown by professions shows *opposition from 99 per cent of the businessmen, salesmen, professional and retired people.* Next in line in opposition were housewives, 98 per cent opposed; farmers 97 per cent, and attorneys and barbers 96 per cent. Socialized medicine had its strongest support among school teachers, 12 per cent of whom answered yes."

Representative Thomas E. Martin of Iowa ade a similar survey which showed only about 4 per cent in favor of compulsory health insur- ice. Sending out approximately 25,000 ques- onnaires, Mr. Martin received 4,221 replies, hich is regarded as a reliable sample.

Included in the eighteen questions asked, was is: "Do you favor socialized medicine?" Re- onses totaled overwhelmingly against—3,409 no nd 575 yes. It is significant that the districts mpled are almost evenly divided between rural nd urban residents.

Representative Henry J. Latham of New York included two important questions in his inquiry: (1) Do you favor socialized medicine? and (2) Do you favor a national health program which would not socialize health services but would supply Federal grants and aids to the States and communities for health purposes? Mr. Latham sent out 95,000 questionnaires and has received 20,000 back, but only 5,000 have been tabulated thus far. In Queens district, only 13 per cent (753 persons) answered yes to the first question; 4,424 said no. The second question brought a more evenly divided answer: 3,009 said yes and 2,136 answered no.

Seeking their constituents' opinion on the matter shows that these representatives are among those actively concerned over this administration measure.

The narrow margin by which the British socialists won the election in February was triumphantly dubbed a "victory" and a "mandate from the people." If such a narrow margin is a mandate, these polls, showing such a large margin against compulsory health insurance, furnish these legislators with a mandate far more significant than any claimed by the British socialists.

MEDICINE CONTINUES TO THRIVE ON TRUTH

The Journal of the Oklahoma State Medical Association recently made an observation on the perennial threat against the advances made by medicine. Under the title, "Medicine Perennially Under Fire," the publication comments:

> "All this agitation about medicine is nothing new. It runs throughout the ages: from 1950 B.C. in Mesopotamia, to 1950 Washington, D. C.; from the shifting sands of the Euphrates to the grass clad shores of the Potomac; from Nebuchadnezzar to President Truman; from Hippocrates, the father of medicine, to Oscar R. Ewing, who . . . wants to be father of us all, thus giving every doctor an oath.
>
> "Through it all there has never been any excuse

> for the medical profession to depart from the truth. Even political pressure can be met with nothing as effective as the plain truth about medicine's unfailing service to humanity. It has weathered the rise and fall of all governments and all civilizations. If left alone it will help save and stabilize our own; if subjected to the rule of bureaucracy it will witness the inevitable decline and yet survive to help build another civilization according its wont."

Truth Can Thwart Progress of Socialism

The Federal Security Agency argues that "about 30 per cent of our people cannot afford to pay for their own health services." In the same breath the same agency reports that the death rate for the United States in 1948 was the lowest in the history of the country. Also, since 1935 the percentage of total births delivered in hospitals has more than doubled, being 84.8 per cent as of 1947. Maternal mortality has decreased to a new low. General health conditions in the United States are excellent, and are still improving.

After presenting these truths, *The Journal of the Michigan State Medical Society* remarks, "This gives the bureaucrats a logical (?) reason for changing the program of health service."

Continued medical progress is one of the best ways to combat compulsory health insurance. The above journal says:

> "The government now is responsible for an unknown number of our people, variously estimated from 20 to 30 million, who receive complete health service, and the government is having difficulty getting more doctors on its various hospital staffs. If the National Health Service Program were adopted, the number of doctors available would be so inadequate that even Ewing estimates it would take twenty years to get the program operating. More doctors cannot be created by passing a law! They need many years of education and training.
>
> "James F. Byrnes, former Associate Justice of the Supreme Court, former Secretary of State, in a recent article in *Collier's Magazine* (March 4), says:
>
> 'If the Politicians will let the doctors alone, the government will be able to continue its boasts about improving health conditions.'"

SOCIALISM—A STEP TOWARD COMMUNISM

Socialism is often thought of as the form of government which will, if left to function and grow, most likely develop into communism. To speed the evolution from capitalism to communism, leftists are now advocating establishment of socialism as an essential step on the way to communism. Les Arends, writing in "Inside News of Congress," comments:

> "Those arguing for the Truman program have been heard to say that 'A little socialism is a good thing . . . socialism is the best insurance against communism.' An answer to this comes from no less a person than the new War Minister in Britain's socialistic government, John Strachey.
>
> "In 1936 Strachey wrote: 'It is impossible to establish communism as the immediate successor to capitalism. It is accordingly proposed to establish socialism which can be put in the place of our present decaying capitalism. Hence communists work for the establishment of socialism as a necessary transition stage on the road to communism.'"

BRITAIN'S SOCIALISM—A FRANKENSTEIN MONSTER???

As would be expected, the cost of Britain's socialism is far beyond original estimates. The millions of extra pounds being spent annually may prove to be like Frankenstein's monster and turn against those who helped create the system. Yet, the British people are not receiving extra benefits for that money, because it is now being spent only to keep this system which won out so narrowly in the last election, and which does not improve its services, but only eats more money.

Raymond Moley, writing in *Newsweek* recently, quotes convincing figures about the high cost of socialism:

> "In the first fiscal year during which people fully appreciated that they could get something for nothing, 1948-49, the original estimate of cost to the government was 200,000,000 pounds. The cost proved to be 278,000,000 pounds. Presumably Health Minister Bevan and his colleagues thought that a total of 261,000,000 pounds would be enough for 1949-50. The final figure it now seems will be 359,000,000 pounds. But the health service has also drawn 41,000,000 pounds from the national insurance fund and 16,000,000 pounds from ratepayers. So the health service will really cost 416,000,000 pounds, and it is believed that next year it will go to 450,000,000 pounds."

Mr. Moley quotes the London *Times'* dry comment on this situation, that before the final supplementary appropriations are made, Bevan will have to convince Parliament "that he is running and not being run by the service he has created."

The conflict within the concept of a welfare state is then explained by Mr. Moley:

> "At that point (when the 'monster' gets out of hand) the Socialist faces an uncomfortable dilemma.

He can completely tighten his control over all concerned—doctors, patients, and local authorities. Or he must surrender his socialism and accept the Conservative principle of a minimum standard based upon proven need.

"Something of the same problem is bound to face all socialistic services. Socialism by embracing a program of fair shares, which really means equal shares, must, if it assures liberty of choice, reach the point where the means no longer exist to permit every recipient to be the judge of his needs. Then government must impose iron controls if it is to keep its socialism. For there can never be equality of demand or equality of productive capacity. When equality is enforced, liberty disappears. That is the irreconcilable conflict within the concept of a welfare state."

OF MICE AND MEN

The lowly mouse is a definite parallel to those ho would nibble or gulp down the "free cheese" f socialism, according to the General Electric *ommentator,* quoted in the Harding College etter:

"Could the mouse, by any chance, get the answer by observing what's happened to others around him?

"Sure, but he won't. Being a mouse, he'll grab—or maybe just timidly nibble—and die!

"What about men? How do too many of us supposedly superior animals act?

"Just like the mouse, just like we had been studying up to be half-wits.

"And we do so in the face of vivid examples—right under our noses and all over the world—that show us we shouldn't.

"Some men have grabbed at something-for-nothing, or 'free cheese,' in sudden and violent communist revolutions.

"Others have only nibbled at 'free cheese' in timid and supposedly harmless collectivist bites—one after another—that will always spring the trap and result in lower living standards and loss of liberty, dignity, and spiritual well-being . . .

"Are we going to prove we're mice—or men?"

ADMINISTRATION CALLED A "PLAYING REFEREE"

With primaries over in some states and still to ause much discussion in others, the *Pennsyl-ania Medical Journal* urges voters to register and ote, using a sports analogy to emphasize its imortance:

"What a furore such a violent reversion of the rules of the game would occasion at a football contest. How the paying spectators would overrun the field to eliminate the referee who claimed a touchdown.

"Why don't the American taxpayers overrun the political field on election day and eliminate the administration that as a 'playing referee' carries the ball with tax money and runs the potato and the egg business, utilities, etc.?

"The answer is that (1) too many taxpayers don't understand the Constitutional limitations against governmental interference with 'free enterprise'; (2) too many of those who do understand don't speak out to their neighbors, don't register to vote, and don't support candidates for office who do support the Constitution of the United States."

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

230 Lowry Medical Arts Building
St. Paul, Minnesota

Julian F. DuBois, M.D., Secretary

Waterloo, Iowa, Physician Sentenced for Attempted Abortion on Minneapolis Woman

Re. State of Iowa vs. Gabriel Bickley Lichty.

On April 27, 1950, Dr. Gabriel B. Lichty, 401½ W. 4th St., Waterloo, Iowa, entered a plea of guilty in the District Court of Black Hawk County, Iowa, to a charge of attempted abortion, and was sentenced to five years in the State Prison at Fort Madison, Iowa. The sentence was imposed by Judge E. T. Evans. Dr. Lichty, who was born in 1903, graduated from the Medical School of the University of Minnesota, in 1927. He is not licensed in Minnesota, but was licensed in Iowa, in 1928.

On October 30, 1949, the Minneapolis Police Department notified the Minnesota State Board of Medical Examiners that a 21-year-old Minneapolis woman was seriously ill in Minneapolis General Hospital following a criminal abortion. Subsequent investigation disclosed that the abortion was performed by Dr. Lichty on October 28, 1949, at his office in Waterloo, and that he was paid $200 for his services. Statements were also obtained from a 26-year-old Minneapolis woman that Dr. Lichty had performed an abortion on her on July 7, 1949, and received $400 for his services. The signed statements were forwarded to the Iowa State Department of Health, and the prosecution of Dr. Lichty followed.

The Minnesota State Board of Medical Examiners wishes to acknowledge the excellent work done by the Minneapolis police officers who were assigned to the case by Mr. Thomas Jones, Superintendent of the Minneapolis Police Department, and also the splendid cooperation received from Mr. Michael J. Dillon, County Attorney of Hennepin County, in arranging for the appearance in Court at Waterloo, Iowa, of the various witnesses in Minneapolis who had knowledge of the facts in both abortion cases.

Minneapolis Man Pleads Guilty in Fake Abortion Racket

Re. State of Minnesota vs. Walter F. Catterson.

On June 1, 1950, Walter F. Catterson, fifty years of age, residing at 624 8th Avenue So., Minneapolis, was sentenced by the Hon. William C. Larson, Judge of the District Court of Hennepin County, to a term of two to eight years in the State Prison at Stillwater. Catterson had entered a plea of guilty on April 27, 1950, to

(Continued on Page 652)

Minneapolis Surgical Society

Meeting of November 3, 1949

The President, Ernest R. Anderson, M.D., in the Chair

THE POSTTHROMBOTIC SYNDROME

NATHAN C. PLIMPTON, M.D.
Minneapolis, Minnesota

Deep venous thrombosis of the femoral and iliac veins produces permanent changes in the limb that affect the physiology of the venous circulation. This altered physiology results in the gradual development of a syndrome climaxed by pain, edema, varicose veins, induration of the subcutaneous tissues above the internal malleolus, pigmentation, a chronic dermatitis of the skin of the lower leg, and chronic ulceration. These symptoms usually develop in this order as early as one to two years or as long as fifteen to twenty years after thrombosis.

It remained for the acumen of John Homans[3] to differentiate between ulcers due to varicose veins and those secondary to thrombophlebitis. In a paper published in 1917, he pointed out that the effect of phlebitis following childbirth, fevers, and intra-abdominal operations is to destroy the valves of the veins in which the inflammation occurs. After recanalization, the lumen remains as a hard, straight, palpable cord through which back pressure is maintained from above as in the case of the typical varicose veins. He proposed radical excision of the ulcer with subsequent skin grafts as a type of treatment. This procedure met with fair success, although in the light of our present knowledge, it was not designed to correct the pathological physiology of the posthrombotic extremity.

Buxton,[1] in 1945, and Buxton and Coller,[2] in 1946, were the first to report interruption of the superficial femoral vein for the treatment of the postthrombotic extremity. They reported a series of twenty-one patients with twenty-three ligations. Of fourteen patients with ulceration, thirteen healed satisfactorily. In the group of seven patients without ulceration, the improvement was not as dramatic; the relief of pain was the most striking result.

Homans,[4] in 1945, was the first to report the division of both the superficial femoral and greater saphenous veins in the treatment of the postthrombotic extremity. He recommended this form of treatment in those cases presenting venous congestion yet with little or no edema. It was from this group of patients that surgery had been withheld in the past because all the distended veins were still considered capable of carrying blood uphill and must not be disturbed. In another group of patients in which there was pain, edema and ulceration, Homans was content to treat more conservatively with sympathetic blocks.

Last year, Linton and Hardy[5] of Boston published a rather impressive report based on forty-nine patients with thrombotic sequelae who were treated by division of the superficial femoral vein and stripping the greater and lesser saphenous veins and their larger tributaries. The incidence of bilateral involvement was 47 per cent. The symptoms of ulceration, stasis dermatitis and pain showed most spectacular improvement. Stasis cellulitis was the least satisfactorily handled. However, none of the patients was worsened by surgery.

An understanding of the pathological physiology underlying the postthrombotic syndrome is essential to satisfactory treatment. Linton makes two important points. First, it is believed that with the exception of pain and edema, the symptoms of this condition do not appear immediately, but only after the veins have become canalized. He observed that 58 per cent of the ulcers in his series occurred between one and ten years after the attack of phlebitis. Second, that postthrombotic ulcerations, unless extremely large, can be healed merely by best rest and elevation. This rather impractical method of correcting the increased venous pressure reduced also the lymphedema, thus establishing a more normal venous and lymphatic circulation.

It has been shown experimentally that after a vein canalizes following thrombophlebitis, the valves are incompetent. It has also been shown experimentally that when the saphenous valves are incompetent, a high pressure is maintained in that vein during muscular activity, whereas with a normal competent valvular system, exercise reduces the venous pressure. A comparable situation undoubtedly exists in the postthrombotic extremity in which the valves of the deep veins are incompetent. The pressure in the veins under these conditions is far above the colloid osmotic pressure of blood, resulting in an increase in lymph formation. As a result of the previous phlebitis, the lymphatics have been damaged so that they do not function normally in the postthrombotic state.

The induration seen over the inside of the lower leg is believed to be secondary to the increased venous pressure. The brown pigmentation of the skin of this area is due to the capillary hemorrhages also secondary to the increased venous pressure. The varicose veins are thought to be secondary to the incompetent communicating veins which transmit the raised pressures to the saphenous systems. With these thoughts in mind, it is easy to understand how necessary it is to interrupt both the saphenous as well as the superficial femoral veins in order to eliminate both channels that make the increased venous pressure a possibility. Linton has recommended that the results with the stripping of the saphenous veins are better than when they are merely ligated and injected with a sclerosing solution. It is his thought that with these veins gone, the old channels are much less likely to be opened up. He further states that in his hands lumbar sympathetic blocks are an unsatisfactory approach to this problem, although Alton Oschner does claim success.

The diagnosis of patients suitable for the ligation treatment of this condition is determined by physical examination as well as the history of an attack of thrombophlebitis. The most important part of the examination is to ascertain the competency of the valves of the deep-communicating and superficial venous systems. This is done by the Trendelenburg test. The veins are emptied by elevating the extremity, a rubber tourniquet is applied to the leg just distal to the knee and sufficiently tight to occlude the superficial veins. The patient then stands up. If the superficial veins fill quickly from below the tourniquet, an incompetency is demonstrated in the valves of the deep and communicating veins.

Report of Case

A man, aged forty-eight, gave the story of developing bilateral thrombophlebitis in 1945 during an attack of pericarditis. The first symptom that followed this complication was a persistent swelling that accompanied the original condition. Associated with this were pain and fatigue in his legs on exercise. Walking as little as two blocks never failed to produce considerable discomfort in his calves. Approximately one year after his phlebitis, he noted a gradual enlarging of the superficial veins of both legs. During this postphlebitic period, the symptoms in his left leg have been noticeably worse than the right. With the aid of elastic bandages and stockings he was able to control the swelling, but the subjective symptoms were not markedly altered. During the summer of 1948, approximately three years after his thrombophlebitis, he developed pigmented areas below each malleolus. These were considered to be potential ulcers. Associated with this was an induration of the surrounding subcutaneous tissue with burning and itching of the colored skin.

My first treatment consisted of injecting some of the more dilated varicosities and the application of elastic bandages. The article by Linton and Hardy suggested what seemed to me a rational approach to this problem, for her was a typical case of the postthrombotic syndrome. Accordingly, on December 30 of last year, the patient was subjected to the following operation. Under general anesthesia, the left superficial femoral vein distal to the profunda femoris and upper greater saphenous veins was exposed. The intraluminal pressure of the former after it had been occluded proximally was observed to be 15 centimeters of water. After the saphenous was occluded, it rose to 24 centimeters. If the latter is over 30, it is advised to divide the saphenous at a later date. Accordingly, these veins were divided and ligated. The diameter of the superficial femoral was observed to be approximately 7 millimeters. Following this, all of the larger varicosities were stripped by means of an intraluminal vein stripper. Multiple short incisions were necessary to accomplish this.

The same operation was done on the right side. There was more scarring and fibrosis of the superficial femoral vein than on the left. The lumen was only 2 millimeters in diameter which accounted for my inability to find the lumen with the exploring needle. Consequently, no pressures were taken. It was conjectured at the time that the reason for the fewer symptoms on the right than on the left might be due to smaller caliber of the superficial femoral vein. The superficial varicosities were then stripped on the right side. Pressure dressings were applied from the groins to the metatarsals. The postoperative course was uneventful except for a lymphorrhea that occurred in the right inguinal incision and lasted for nearly four weeks.

The patient states that since the operation his legs feel better than they have at any time since his original attack of thrombophlebitis. The subjective symptoms of fatigue in his calves and burning and itching below the malleoli are gone. The pigmented areas persist, but the induration in the subcutaneous tissues is no longer present. A few rather moderate sized varicosities that were missed in the stripping have enlarged, but they are being satisfactorily handled by injections. There was some residual lymphedema which required elastic bandage support. This has gradually improved until at present his left leg requires no support, but his right will swell slightly without it.

Summary

1. A brief review of the literature on the postthrombotic syndrome is presented.

2. The pathological physiology of this condition is discussed along with the rationale for a proposed method of treatment.

3. A case of the postthrombotic syndrome is presented along with the results of surgical treatment.

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VENOGRAPHY IN THE POSTPHLEBITIC SYNDROME

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Minneapolis, Minnesota

Iliofemoral thrombophlebitis is usually followed in months to years by a syndrome characterized by edema, pain, recurrent cellulitis, pigmentation and ulceration. Collectively, this is known as the postphlebitic syndrome.

The pathological physiology of the postphlebitic syndrome and a means by which this may be corrected were set forth by Homans in 1941.[4] He stated that the femoral system once thrombosed must suffer the loss of all its valves so that when the body is erect the venous return must take collateral valved pathways. Blood must pour down a valveless vein, and it is, there-

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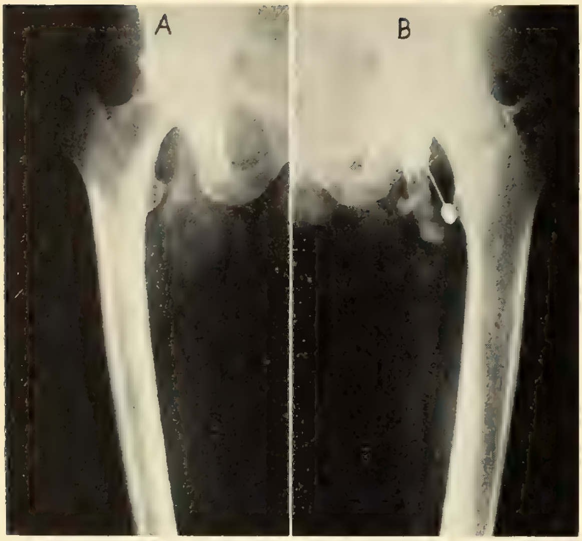

Fig. 1. *A*—Normal femoral venogram, showing a normal valve in the superficial femoral vein and a normal valve in the profunda femoris vein.

B—The superficial femoral vein has been ligated in this patient in the acute stage. The position of injection is shown. Also the competent valves in the saphenous and in the profunda femoris veins are shown.

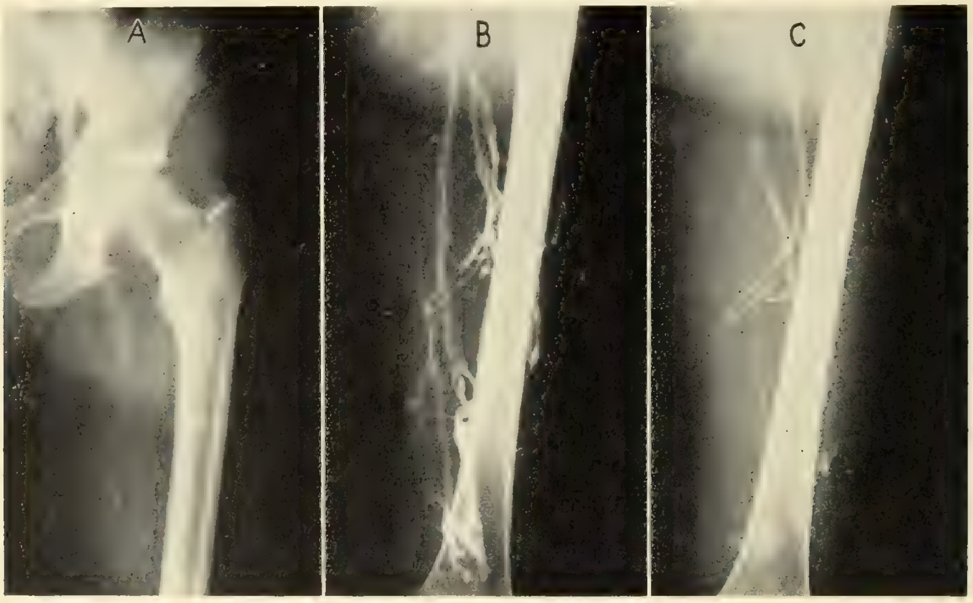

Fig. 2. *A*—Femoral venogram, showing reflux into the superficial femoral vein.

B—Popliteal venogram on patient in *A*, showing recanalization of the superficial femoral and profunda femoris veins and showing a gross communication between the superficial femoral vein and profunda femoris vein above the knee.

C—One-minute popliteal venogram, showing presence of opaque material which is evidence of slowing of circulation.

fore, reasonable to assume that an old sclerosed and canalized femoral vein or external iliac vein is better divided.

Bauer[1] was probably the first to demonstrate the pathological physiology of the deep venous system that followed an iliofemoral thrombophlebitis. In 1948, he reported his findings using direct venography. Bauer cannulated the superficial femoral vein directly, after surgical exposure. Radio-opaque material was then introduced into the superficial femoral vein while the patient was in a 45-degree upright position on an x-ray apparatus. X-ray exposures were then made. Bauer was able to show that following an iliofemoral thrombophlebitis in patients with the postphlebitic syndrome, recanalization had taken place in the superficial femoral vein and that the radio-opaque substance would flow downward even into the popliteal vein and occasionally into the veins of the calf. In the normal superficial femoral vein, the material would be held by competent valves and would pass upward. No dye was seen to reflux into the deep veins of the thigh.

We have been able to simplify the technique of direct femoral venography and have been able to demonstrate incompetency in the deep femoral vein as well as in the superficial femoral vein. By means of a popliteal venogram, we have been able to show that many times there exists in the postphlebitic leg a gross communication between the superficial femoral vein and the profunda femoris vein above the knee. Because of these findings, we have thought it to be more logical that ligation of the popliteal instead of the superficial femoral vein be carried out in the postphlebitic syndrome.

The technique used for direct femoral venography is essentially the same as Bauer's, except that a percutaneous entrance into the femoral vein is carried out. Femoral venography is carried out as a diagnostic aid before any operative procedure is decided upon.

The patient is placed on a tilted x-ray table in a 45-degree upright position. After infiltration with novo-

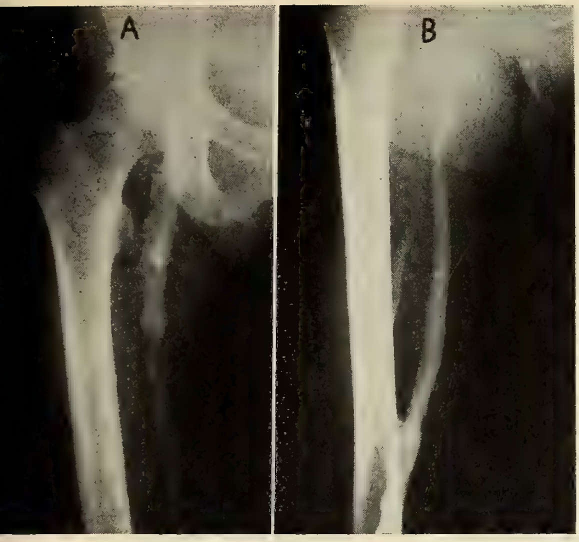

Fig. 3. *A*—Femoral venogram on patient with postphlebitic syndrome but without history of iliofemoral thrombophlebitis. This hows the reflux into a dilated vein and the presence of incompetent valves.

B—Popliteal venogram on patient in *A*, showing gross communi- ation between profunda and superficial femoral veins.

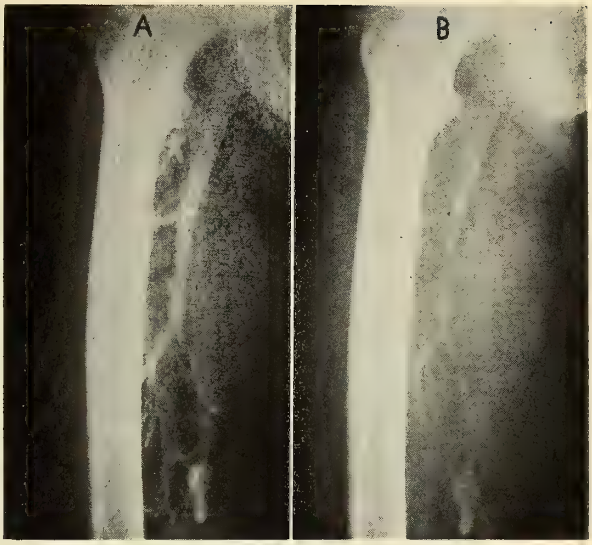

Fig. 4. *A*—Femoral venogram showing reflux into superficial femoral and profunda femoris veins.

B—One-minute film, showing remaining dye in the femoral veins.

caine, a direct puncture is made into a common femoral vein just below the inguinal ligament. A 19-gauge needle s used. Thirty cubic centimeters of 35 per cent diodrast are then injected rapidly. An x-ray exposure is made mmediately following the injection, and a second exposure is made one minute later.

The popliteal venogram is carried out in the 54-degree upright position with the patient face downward on the x-ray table. A direct entrance is made into the popliteal vein at the level of the upper border of the patella, and 30 cubic centimeters of 35 per cent diodrast are njected. X-ray exposures are made immediately and one minute following the injection.

Each patient is tested for sensitivity to diodrast before njection. The occular test has been used. In over 100 njections, about 25 per cent of the patients had nausea but only six patients actually vomited following the njection. The nausea is usually completely gone in about three minutes.

We have reached the following conclusions after more than 100 femoral and popliteal venographic studies:

1. In the normally functioning femoral vein, valves are usually present and they will prevent the radio-opaque material from flowing downward (Fig. 1, *A* and *B*).
2. In the normal femoral venogram, the iliac vein is well filled and the one-minute exposure will show a complete absence of radio-opaque material except in the valve sinuses where it will remain for as long as five minutes.
3. In the absence of valves or in a recanalized femoral vein, femoral venography will show that the opaque substance has refluxed into the veins of the thigh, at times even into the veins of the calf (Figs. 2 *A*, 3 *A* and 4 *A*).
4. In patients with the postphlebitic syndrome who show absence or incompetence of the valves, the one-minute exposure will show the presence of the radio-opaque material in the veins of the thigh. The amount remaining depends upon the degree of slowing of the return circulation and the presence of adequate functioning collaterals (Fig. 4*B*).
5. In patients who present the picture of a postphlebitic syndrome without a history of iliofemoral thrombophlebitis, the femoral venogram will show reflux. In these patients, the veins will be seen as a large dilated straight tube without valves. Occasionally, valves are present but are incompetent (Fig. 3 *A*).
6. The profunda femoris vein can be incompetent either alone (Fig. 5) or together with the superficial femoral vein (Fig. 4).
7. By the use of the popliteal venogram, we have been able to show that often there exists a gross communi-

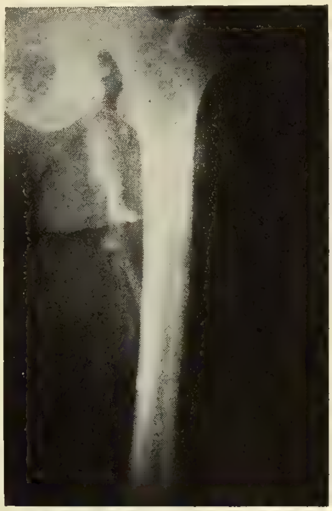

Fig. 5—Femoral venogram, showing reflux into profunda femoris vein alone.

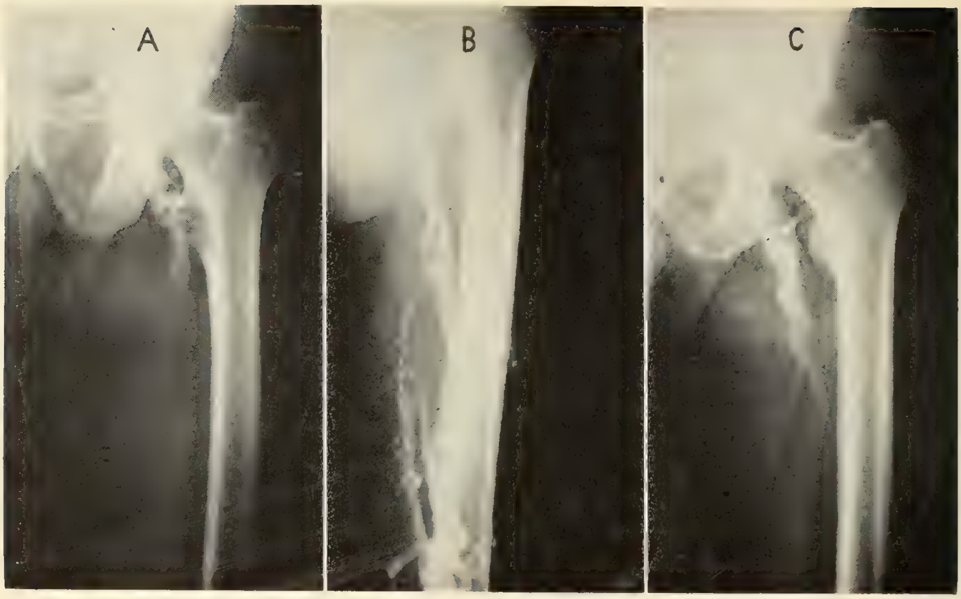

Fig. 6. *A*—Femoral venogram, showing evidence of recanalization in iliac vein and femoral vein. At this time, it was thought that the superficial femoral vein was involved, and a superficial femoral vein ligation was carried out without relief of pain or healing of ulcer in spite of two skin graftings.

B—Popliteal venogram on patient four months after superficial femoral vein ligation. The gross communication between the superficial femoral and profunda femoris is clearly shown.

C—Femoral venogram on patient in *A* and *B*, four months after superficial femoral vein ligation. This shows that the profunda femoris vein is incompetent. A popliteal vein ligation was carried out. A skin graft was then applied to the ulcer which healed well, and the patient had complete relief of pain following the popliteal ligation.

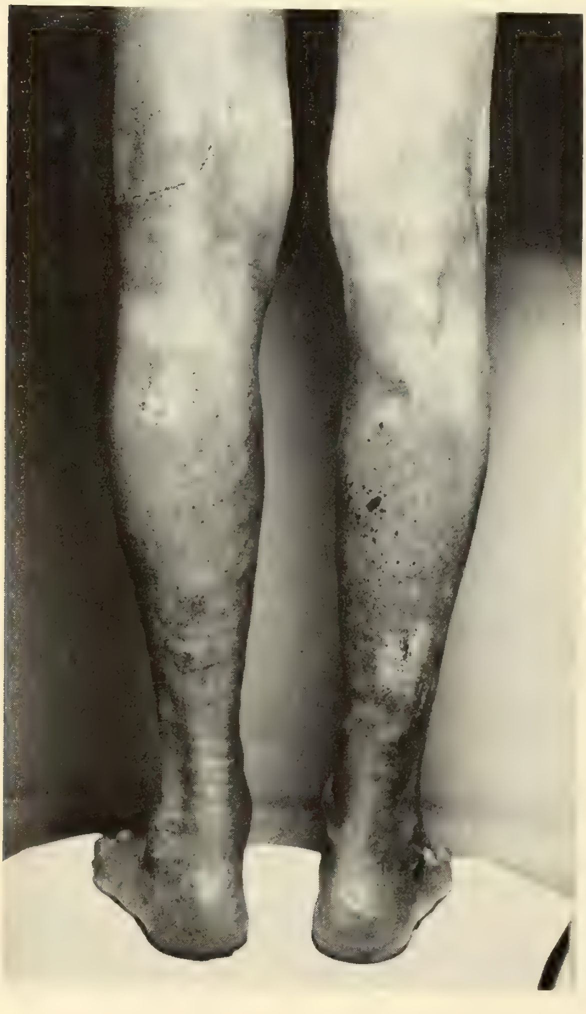

Fig. 7. The incision used to ligate the popliteal vein.

cation between the profunda femoris vein and the superficial femoral vein just above the popliteal space. Ligation of the superficial femoral vein in these patients will not benefit the leg because the pressure is then transferred to the profunda vein which in turn transfers the increased pressure again into the popliteal vein and into the lower leg. This is especially true in patients in whom the profunda vein is incompetent at the time. In this type of patient, ligation of the superficial femoral vein and the profunda femoris vein could be carried out with benefit to the lower leg, but we have found increased edema in the thigh in two patients in whom this was done. The popliteal vein is the logical site of ligation. This will stop the reverse pressure from both the superficial femoral and the profunda femoris vein and will not interfere with collateral channels in the thigh (Figs. *2B*, 3 *B* and 6 *B*).

8. In the popliteal venogram, as in the femoral venogram, the one-minute film will show the veins of the thigh to be cleared of dye in the normal vein, but still present in the incompetent vein.

Superficial femoral vein ligation for the postphlebitic syndrome was first reported by Buxton[2] in 1944. He found that in many cases ulcers could be healed, but that pain and edema were not uniformly relieved. Linton[5] reported 80 per cent healing of ulcers and 63 per cent relief of pain following ligation of the superficial femoral vein. Glasser[3] reported one recurrence of ulcer in six patients who were followed for five years following a superficial femoral vein ligation for the postphlebitic syndrome. However, he reports a 50 per cent recurrence in those followed for only two years. Bauer[1] reports relief of pain and healing of ulcers in all patients following ligation of the popliteal vein. Our results following popliteal vein ligation compare closely with those found by Bauer. However, our longest follow-up has been only eight months. Relief of pain following the ligation is dramatic in those patients who give a history of a pressure pain and in whom reflux is shown by venographic studies.

Together with the popliteal vein ligation, we have ligated and stripped, with the intraluminal vein stripper, all patients who had an incompetent saphenous system. Superficial varicosities that remained were then treated by injections.

Summary

The technique of direct femoral venography and popliteal venography and the findings as they refer to the postphlebitic syndrome are presented. Incompetency of the valves of the femoral venous system accounts for a large part of the postphlebitic syndrome. Not only can the superficial femoral vein be incompetent alone, but the pathologic physiology may extend into the profunda femoris vein as well. The femoral venogram is used to study this pathological physiology. By means of the popliteal venogram, the anatomy of the venous system of the thigh can be studied, and it has been found that in a large number of cases there exists a gross communication between the superficial femoral vein and the profunda femoris vein just above the popliteal space. Because of the venographic findings, we have felt that a popliteal vein ligation should be performed in preference to the superficial femoral vein ligation in the postphlebitic syndrome. Results have been encouraging, especially in relief of pain and healing of ulcers.

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THE RETURN OF "VEIN STRIPPING"

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Ligation and retrograde injection are currently the most widely used method of treating varicose veins. Quite recently the so-called "stripping procedure," a method used many years ago, is gaining popularity. The current method of treatment was preceded by many frustrating efforts in other avenues.

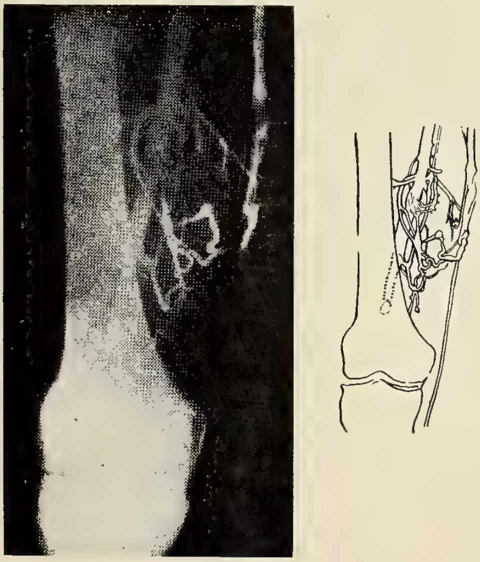

Fig. 1.

Throughout the ages, many procedures such as ligation, incision, excision, cautery, bleeding, compression sutures, etc., were suggested, tried and abandoned.

Around 1850 attempts were made to obliterate varicose veins by injection alone. Unsatisfactory fluids for injection purposes plus the lack of understanding of the fundamental physio-pathologic condition at fault, doomed this form of therapy to failure.

From 1880 to the early twenties, it was the vogue to do extremely radical procedures. It would seem that the symptoms sometimes did not warrant such extreme measures. Schede made multiple circular incisions down to the fascia from the groin to the calf, ligating all veins encountered. In 1884, Modelung[8] extirpated the entire saphenous vein through a long vertical incision from the groin to the ankle. In 1908, Friedel[4] described a long spiral incision from the groin downward, encircling the leg several times, packed wide open and allowed to granulate. Needless to say, the "vein stripping" procedure as introduced by Mayo[9] in 1906 and by Babcock[2] in 1907, were accompanied by too many complications. With the other radical procedures, it was abandoned as soon as a safer procedure was available.

The procedure became available in 1916 when John Homan[6] described the reverse flow phenomena in the saphenous vein, designated the saphenofemoral junction as the proper site of ligation and stressed ligation of all collateral branches. The operation is today performed as he described it in 1916. Further refinement was added in 1930 when Higgins and Kettel developed "sodium morrhuate" for retrograde injection. This was the first solution available with a high sclerotic index and yet relatively safe for the patient.

Gradually, then, a simple procedure evolved, easily performed with a high degree of effectiveness and a relatively low incidence of complications. It was to be expected that the ligation-retrograde injection technique quickly caught the fancy of all surgeons and has been done the past three decades almost to the exclusion of all other methods.

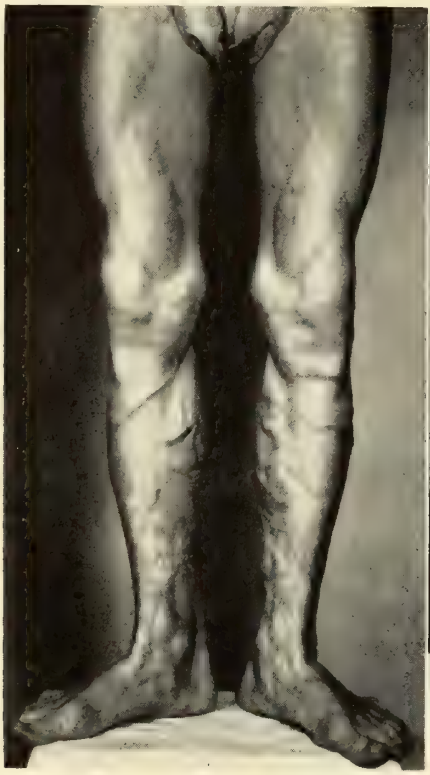

Fig. 2.

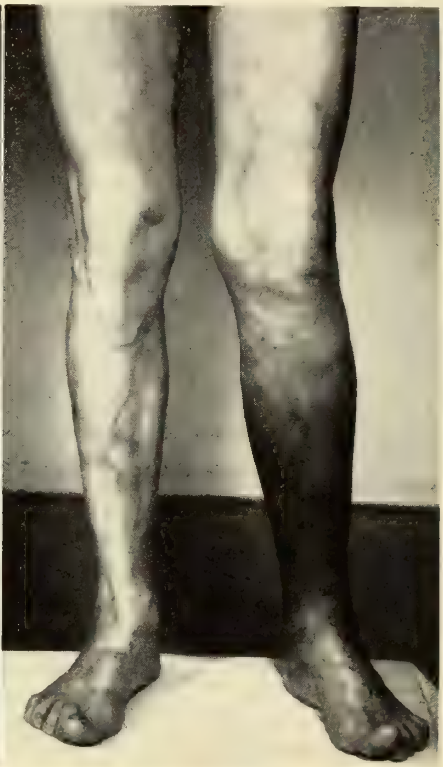

Fig. 3.

Thus we have gone through many phases and find ourselves repeating the cycle again by reviving one of the older, more radical procedures, namely, the "stripping" procedure. Why is this procedure being revived? Is it now a safer operation than it was in 1910? Is it a more effective operation, associated with fewer recurrences than the conventional ligation injection technique?

The "stripping" procedure is unquestionably safer than it was between 1910 and 1920. During that period the patients were left in bed for one to two weeks. They are now ambulated the evening of operation. The extensive openings into tissue planes are not as hazardous with better surgical and operating room care and with the antibiotics as adjuncts. Whereas the thromboembolic complications were quite common in the earlier days of "stripping," they are almost unknown today, and the availability of anticoagulants leaves one much more secure as to this complication. In approximately 200 cases of "stripping" at the Minneapolis Veterans Hospital, only one questionable case of calf phlebitis was observed and no embolic phenomena.

It is apparent that one should have a two-year follow-up to determine recurrences in varicose veins. It is our impression, however, that the recurrence rate is definitely less with the "stripping" than with the conventional methods. Hodge et al,[5] Stalker,[13] Linton[7] and McElwee and Maisel[10] now prefer to treat varicose veins by "stripping."

Some space should be devoted to the dangers of retrograde injections with the conventional method of handling varicose veins. This hazard, of course, is not present when the veins are "stripped." Hodge,[5] Slevin,[12] Atlas,[1] Witter,[14] and Boyd and Robertson[3] do not use retrograde injections because of the dangers of introducing a deep phlebitis. When the vein only is ligated, one has done a rather incomplete operation. Boyd, et al[3] and McPheeters[11] have both demonstrated the presence of the radiopaque material in the femoral vein quite soon after it was injected into the superficial saphenous vein. One is then depending upon the size and rate of flow in the deep vein to prevent or minimize the phlebitis. I have been particularly impressed in obtaining a history in the long-standing post-phlebitic syndromes that many of these people unequivocally volunteered that the symptoms of their deep vein involvement gradually began after superficial vein ligation and retrograde injection. Figure 1 demonstrates the amount of dye that sometimes passes immediately into the deep circulation after being injected into the distal end of the divided saphenous vein. When the injected material is an irritating solution, it is obvious that deep vein damage can result.

Indications for stripping are variable. I believe the following would be acceptable in any quarter:

1. Extremely large veins (Fig. 2).
2. Inactive deep phlebitis with incompetent superficial veins (Fig. 3).
3. Multiple previous injections.
4. Recurrence following previous adequate ligations and retrograde injection.

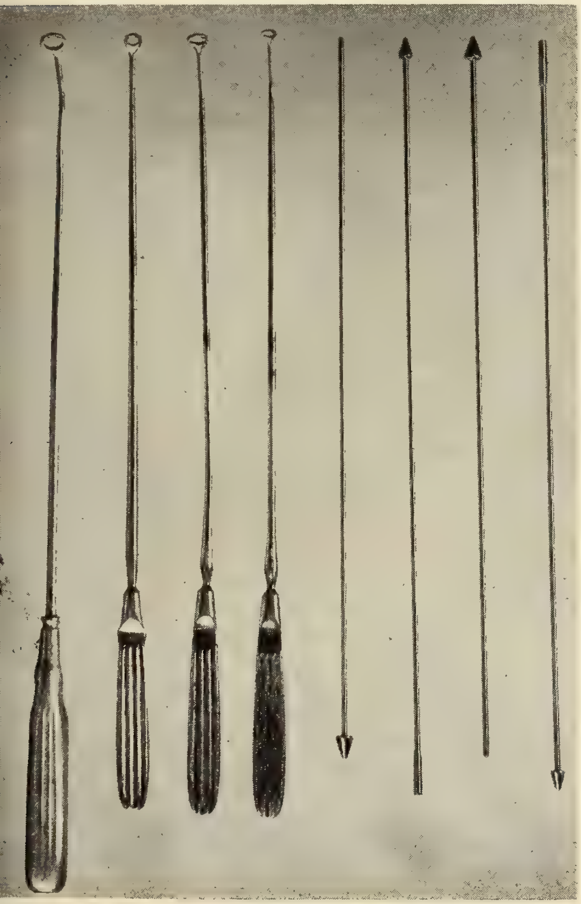

Fig. 4.

In my own private work, however, I go beyond the above indications and use the "stripping" procedure almost to the exclusion of all other methods. To date, I have been satisfied with the immediate and late results.

Technique

A question of technique in this procedure always begins with the type of "stripper" used. We have been satisfied with the Babcock intraluminal stripper with the occasional use of a small Mayo extraluminal stripper for small tributaries (Fig. 4). Several other types of instruments with various innovations are available. Of these the Myers stripper, devised by Dr. Tom Myers of Rochester, Minnesota, is an excellent intraluminal stripper. It permits one to strip the vein upward from the ankle to the divided segment in the groin. An adequate ligation of the saphenous vein at the juncture with the femoral vein, including all collateral branches, is mandatory. The saphenofemoral juncture should be clearly dissected and the femoral vein clearly identified completely around the juncture. Stripping of the distal segment proceeds according to the individual technique. The patient should always be placed on the operating table in slight Trendelenburg position. This so lowers the pressure in the femoral vein that the torn ends of the communicators bleed into the femoral vein lumen rather than into the subcutaneous tissues. One is amazed often at the minimal bleeding encountered from this procedure which appears on the surface so traumatic. In stripping the distal segment of the saphenous vein from the groin, one can often go to the ankle and withdraw the vein in one long segment. Sometimes, a communicator at the knee traps the tip of the stripper, and one has to divide the vein here and proceed again. With open ulcers at the ankle, one should strip down to the ulcer if possible. The ulcer does not have to be healed, but should be free from infection and covered by clean granulations.

With the patient still in Trendelenburg position at the completion of the procedure, two longitudinal folded towels are incorporated as pressure dressings over the bed of the excised saphenous vein by using two 4-inch Ace bandages from ankle to groin over the towels. The patient walks the evening of the operation. He is given a daily dose of procaine penicillin and can be dismissed in one or two days. With proper care regarding subcutaneous bleeding these patients have remarkably little post-operative disability. They are much more comfortable than following a retrograde injection of one of the sclerosing solutions.

Postoperatively, these patients must be followed until all residual veins are obliterated by office injections. These are not started for one month because often an enlarged residual vein is actually filled with soft clot and in a few weeks will begin to contract down. These patients on an average will require fewer postoperative injections than following other procedures. Often they require not a single injection, but are all instructed to return for routine six-month check-up and at periodic intervals thereafter.

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FUNDAMENTAL PRINCIPLES IN THE TREATMENT OF VARICOSE VEINS

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One often hears this complaint: "There is so much confusion and contradictory advice about vascular conditions that it is impossible for the average doctor to know what is best for his patient." It is my purpose to emphasize that there is general agreement on basic, fundamental principles, and these fundamental principles are very simple and easily understood. The differences of opinion are chiefly as regards which of two or more procedures will produce the best results.

There is general agreement that heredity and phlebitis are probably the two most important etiological factors in the development of varicose veins. Any varicose vein, whether degenerative or postphlebitic, can be eradicated, but the tendency to form new veins will still be present. This tendency to form new veins can be modified by proper care, but cannot be eliminated. Any doctor who accepts a patient with this tendency and eliminates the existing veins has only fired the opening gun in a war that will last as long as the patient lives. The patient must thoroughly understand, before any treatment is started, that there are several different types of treatment but that none of them is perfect; that regardless of which type of treatment is used, he will need regular care, in the average case once a year, as long as he lives. Help him to understand by explaining that it is exactly the same type of continued deterioration that requires his going to the dentist at regular intervals.

There is general agreement on the fundamental principles of treatment of superficial varicose veins. Small veins can be destroyed by injection of a sclerosing solution. Larger veins, especially those veins which are subjected to considerable intravenous pressure, are best treated operatively and here again there is important agreement. The two essentials are, first, a high ligation, and second, destruction or removal of the varicosed segments. I am speaking about superficial veins. I believe that judgment on the femoral and popliteal vein ligations should be held in reserve until we see how long the good results last. In those deep vein ligations, a fundamental principle is violated; the distal segment is not eradicated.

There are three generally accepted groups or types of varicose vein surgery: (1) high ligation plus stripping; (2) high ligation plus multiple incisions for ligation of perforators; and (3) high ligation plus retrograde injection.

All three groups have a high ligation as an essential part. Any one of the three types of treatment fails if the long saphenous vein is not ligated proximal to the tributaries that join it very close to the femoral vein. I am sure that this is the most common cause of failure. The only way one can be sure he is ligating proximal to these tributaries is to continue the dissection until he can ligate the saphenous flush at the junction with the femoral.

The second essential of varicose vein surgery, after high ligation has been completed, is the destruction or removal of the remaining varicose segments. This can be accomplished by three or more methods. No one method is ideal or perfect. Stripping works well if the veins are straight and tubelike. Retrograde injection is better if the veins are extremely tortuous. Separate incisions for ligation of incompetent perforators may be indicated even in the extremity having one of the above-mentioned types of treatment. Injections of sclerosing agent, to eliminate remaining varices, can be used as a follow-up treatment, regardless of the type of original surgery.

There are advantages and disadvantages in all three methods. I do not believe we should be committed exclusively to one method but should determine, in each case, which method will best eliminate the varices in that particular case. An internist does not prescribe the same kind of diet for all his patients; neither should a vein surgeon commit himself to one procedure, regardless of what type of veins his patient has.

The stripping procedure is described elsewhere on the program.

Multiple incisions for ligation of incompetent perforators are advocated and described by Sherman in the August 1949 issue of *Annals of Surgery*. Sherman uses a high ligation plus retrograde injection of a small amount of sclerosing agent, but he feels that this "often fails to produce maximum benefits." In an attempt to improve his results, he studied the anatomy of the lower extremity intensively. He dissected 229 lower extremities on cadavers, and made about 1500 radical surgical dissections. From these extensive studies, he came to the conclusion that there are perforator veins, at fairly uniform locations, that can become incompetent. He advises multiple incisions for ligation of these incompetent perforators, emphasizing that, to be successful, such ligations must be made deep under the fascia, deep in the muscle, if possible at the junction with a major vessel of the deep venous system. He describes the stripping procedure as "futile," because it leaves the collateral and accessory perforator veins undisturbed. "The reflux of blood through the incompetent leg perforators is not altered, and the procedure fails to accomplish its purpose." He finds from one to fourteen incompetent perforators in a single leg. Seven mild embolisms occurred in his series. His operative time for one extremity is three hours.

Obviously, his system is not ideal for several reasons.

1. A general anesthetic is required and active motion cannot start until the anesthetic wears off.

2. Numerous scars constitute a cosmetic objection.

3. At least in our experience, what appears to be a perforator often turns out to be just a dilated vein.

4. Any surgical procedure that takes an experienced specialist three hours for one leg will require a longer time for a surgeon who does that procedure only occasionally. In other words, a patient with bilateral varicose veins will require perhaps 6 or 8 hours for the average surgeon, exclusive of preoperative study and postoperative care.

The third, and I believe one of the best methods, is high ligation with retrograde injection. With teamwork, the patient with bilateral varicose veins can be operated upon in one hour. Only local anesthesia is necessary, and the patient is ambulatory immediately. Fast walking at frequent intervals is essential; it increases the safety and decreases the discomfort. The majority of these patients do not require a hospital bed and this, combined with the shorter time required for operation, makes the procedure less expensive. Dr. McPheeters can look back on several thousand consecutive ligations without a fatality or even a proven embolus. Gunnar Bauer, during his recent visit here, stated that he favors this method. It should be noted that if the surgeon suspects the presence of one or two incompetent perforators, he can easily care for them by novocaine infiltrations and a secondary incision immediately following the regular procedure. The retrograde injection can be made more effective by means of the "empty vein technique" in which the extremity is first elevated to drain the blood from the leg into the abdomen. Then, as the leg is lowered and the table is tilted so the patient's body is partially upright, the retrograde injection is made and gravity helps the solution go toward the foot. We are often able to get obliteration of varicose veins in the lower calf and ankle by this empty vein technique, and we believe it eliminates the need for the ureteral catheter sometimes employed to get the solution into the lower leg.

This retrograde injection method also is not perfect for several reasons.

1. The chemical phlebitis causes pain and soreness for several days.
2. A thin-walled vein, close to the skin, may produce a pigmentation. This can be minimized by draining pocketed areas of half clotted blood and by supportive bandaging to compress such veins.
3. Any sclerosing agent can cause an allergic reaction in a sensitized patient, varying from a mild urticaria to severe shock. It is wise to have ready an emergency box, with adrenalin, aminophyllin, anti-histaminics, et cetera.
4. The sclerosing solution, conceivably, could precipitate an acute phlebitis, especially if the patient has a thrombotic tendency. It should be used with care in any patient with a history of phlebitis, and not used at all, if the phlebitis is still active. But there is no justification for any doctor's telling a phlebitis patient "never let any doctor touch that leg." We repeatedly see large, foul-smelling, painful ulcers that have been present on swollen, pigmented legs, for months and sometimes years, because of a very positive order from the attending doctor: "Don't ever let any doctor touch that leg; if you do, you will probably lose the leg and perhaps lose your life."

Just as bad is another almost unbelievable order, "Never put an elastic bandage on that leg." These two instructions are probably based on the supposition that the deep venous system has been closed by the phlebitis, and that it stayed closed. That is not correct. Intravascular clotting in an artery seldom recanalizes, but in a vein it often does so. The obstruction of the deep phlebitis is temporarily compensated for by dilated, superficial veins, but within a few months a new canal in the deep vein can make the dilated superficial veins a liability instead of an asset. These dilated or varicosed veins then need at least conservative management. In that term is included three things: (1) activity; (2) occasional elevation during the day, and (3) supportive bandaging. It is advisable that patients with varicose vein tendency should lead an active rather than a sedentary life. A quick contraction of the calf muscles, such as occurs in walking briskly, will force the blood upward; thus the calf muscles act like a second heart, helping the return flow of blood to the trunk. Prolonged standing or sitting in one position such as occurs among dentists, barbers, elevator operators and streetcar motormen is not good. Edema gradually develops late in the day. The condition is usually progressive, and as time goes by the patient finds he develops the swelling earlier and earlier during the day. Also, it disappears less completely at night. This edema is a danger signal. If there is one fundamental principle that is generally agreed upon, it is this: edema is detrimental and must be prevented if possible. It is advisable for patients with a varicose vein tendency to lie down and elevate their legs at least twice a day. The length of the elevated period varies from five minutes to an hour, depending on the severity of the condition. While the legs are elevated above the level of the heart, gravity will help the return flow of blood, and the swelling should disappear. We advise our patients to examine their ankles each night at bedtime. If there is any swelling, it is a warning signal. If swelling has developed in spite of activity, and in spite of regular leg elevation, an elastic supportive bandage should be worn at least part time. "Wrap around" bandages give better support than the stocking type. They should be 4 inches wide for the average leg; a 2-inch width is almost useless. They must be applied snug enough to give firm pressure. Stasis is even more important if the patient becomes ill or is confined to bed for any reason. Blood flowing slowly through a vessel is much more likely to clot than blood flowing rapidly. Frequent motion, especially of the lower extremities, will increase the rate of blood flow and decrease the possibility of phlebitis and embolism. Many hospitals have established vascular committees to recommend routine measures and emergency procedures for vascular complications. Such a committee can make a detailed study of each complication that occurs, and be ready to make suggestions when the case is discussed at the monthly staff conference.

There is one very important consideration that should be emphasized. A patient with varicose veins has a progressive condition. Those patients in the late forty-year-old and early fifty-year-old groups, especially, tend to become worse and to develop complications. Some of them, on first examination, seem to need only conservative management, but, in view of the progressive nature of their disease, actually require radical treatment. The admittedly imperfect treatment for varicose veins must aim not only to relieve the symptoms now present but also to prevent more serious trouble in the future. In weighing the merits and the possibilities of each type of treatment, we must consider not only the immediate improvement but the duration of that improvement. How good will that leg be twenty-five years from now?

In conclusion, I would like to emphasize these points:

1. We can destroy any vein we can reach, but there is still no method by which we can prevent new veins from forming. This tendency to form new varicose veins makes regular follow-up care imperative, regardless of the type of treatment.

2. The essential feature of the surgical treatment of varicose veins is a good, high ligation. The dilated segment distal to the ligation can be destroyed or eliminated by several methods, each of which has advantages and disadvantages that should be considered in the light of the requirements of each individual case.

3. Stasis and edema are dangerous and detrimental. The co-operation of the patient in wearing supportive bandages and frequently contracting the calf muscles will minimize the dangers.

4. The "empty vein technique" for either retrograde injection or follow-up office injection allows greater concentration of the sclerosing agent and gives better results.

5. Untreated varicose veins become progressively worse. Treatment should not only relieve present symptoms but should also prevent future trouble. It is preventive medicine.

RESUME OF PRESENT-DAY CARE AND TREATMENT OF VARICOSE VEINS AND THEIR COMPLICATIONS

H. O. McPHEETERS, M.D.
Minneapolis, Minnesota

It certainly must be apparent by this time that the proper method of treating varicose veins is anything but a settled one. It would seem that such a common clinical disturbance would lend itself to the rapid development of a perfect, simple and complete cure. Such is not the case. A review of the medical literature of the past year shows that an article on some phase of the problem appeared in almost every journal published. After having cared for 25,000 varicose vein patients and having done ligations with retrograde injections on 6,400 of these patients, I have not yet settled on the right method. Because of this unsettled state of affairs and knowing that all new ideas on this subject are supposed to originate in the East, I arranged for a personal visit to Boston and spent four days with Dr. R. R. Linton, one day with Dr. Gerald Pratt in New York and one day in Chicago. After all the discussion generated by such a trip in addition to my own experience, I have now formed some very definite conclusions.

As Dr. Alexander has so clearly said, there are basic fundamentals in this treatment on which we all do agree.

We must accept the fact that this is a degenerative process developing as the years pass by and that our patients will have more varicose veins regardless of what method of treatment is used or how thoroughly it is carried out.

At the risk of repetition, I want to emphasize the fact that today all authorities agree that a definite reverse flow of blood has developed in any well-advanced and extensive case of varicose veins, and that any successful treatment must seek to check this at its source, wherever that may be.

As the other speakers have pointed out, this reverse flow of blood usually begins at the sapheno-femoral junction. This means *at* the junction and not 3 inches or 2 inches or even one-half inch below. The most common cause of failure in this work is the lack of appreciation of this fact. It is true that in many cases a simple ligation of the great saphenous vein may hold the process in check for a while, even without injections. Yet, it is also true that there is a large variation in the arrangement of the tributaries or branches of the saphenous vein near the foramen and that the reverse flow may develop through any of these as well as, or in addition to, the main saphenous vein itself. If this is true, then the ligation must be *above* all these tributaries and flush with the wall of the femoral vein, if we hope for a good result. As Dr. Sherman has pointed out in his classical dissections, there are many communicating branches throughout the entire leg, and a recurrence may develop through these, even though a high ligation has been well done. It is with the idea of closing these communicating veins that I have done my retrograde injections, while other men chose to remove the saphenous vein in one way or another. Sherman does the high ligation and injects sodium morrhuate distally and then proceeds to do his dissection. At times he injects the veins in the lower leg several days preoperatively. He says that this all lessens the hemorrhage at the time of dissection. He may spend three hours on the dissection of one leg and often four hours on a bilateral. His dissection is carried out with spreading dissection and incisions down the leg. Few men use the Mayo stripper any more. The Babcock stripper is also being replaced by the more flexible type, the Linton and Meyers.

I believe the best stripping is done by Linton and his students. He uses a soft, flexible intraluminal wire and strips or pulls out all the varicosed segments he can find. He does both the long and short saphenous veins at the same time. If the short saphenous is varicosed, he carries the stripping right down to the ankle. Many times the vein will be found to go directly under the old ulcer, or at the foot internally or externally directly into an open ulcer.

The stripping is carried out under pentothal or spinal anesthesia by preference. The table is tilted to 10 to 15 degrees. The Trendelenburg position is utilized during the operation, and there is but little hemorrhage. Postoperative pads are bandaged along the course of the stripped veins and an ace or adhesive bandage wrapped about the entire stripped area. The foot of the bed is raised on shock blocks, with each leg on a pillow. The legs are kept so for two days. The patient is told to get up and start walking twelve hours postoperative and at two-hour intervals after that. When not walking, the legs are supposed to be elevated. The bandages are removed on the fourth day and continued after that on the lower leg, only as long as the legs swell. The absence of postspinal headaches is attributed to the small needle used, 22 gauge, and the technique as well as the small amount used (12 mg. of Pontocaine, as a rule).

After having done 6,400 varicose vein ligations with retrograde injections of the sclerosing solution, I admit that the retrograde injection following the high ligation falls short of perfection in that the communicating veins in the large and extensive cases cannot be adequately, completely and permanently closed. They often recanalize and become the source of a recurrence or a new varicose vein development. If the vein in the superficial fat is torn off and removed, this cannot happen. When sufficient sclerosing solution is injected to sclerose the vein well, the chemical phlebitis that develops is so severe and painful in the extensive case with large varices, that the patient is almost incapacitated. The veins are so sore, the patient can hardly walk, and yet he must walk to avoid emboli. As the large thrombosed segments liquefy, they must be drained or the soreness will persist, the pigmentation will be severe, and they will be the source of new varicose veins. For these reasons, I believe the thorough stripping is the best procedure in all the extensive cases, and because of the extensive collaterals I plan to use it for all bad cases of the short saphenous group. I have seen many cases of varicose veins in patients who have been stripped, but there should be fewer varices develop subsequently in any patient well ligated and stripped than by any other method.

I hardly feel able to comment on the work of Dr. Kusz because he is so far ahead of the field that I have not caught up with him as yet. Much of it is very logical. It follows the ideas of Homans and Bauer. It was Homans, you will remember, who first was rash enough to suggest the ligation of the femoral vein for this reflux flow in the femoral vein years ago. His slides are beautiful and the result of much effort. I have seen some of his fine results. I am eager to see how they are five years from now. That will be the answer. He must surely be congratulated on his fine work.

Dr. Plimpton is to be congratulated on his excellent discussion of thrombophlebitis. His résumé of the literature is very comprehensive.

In cases of an acute thrombophlebitis of extensive large superficial varicose veins, Dr. Linton prefers to excise the entire inflamed mass and then do a high sapheno-femoral ligation. Most men prefer to put the patient to bed with the application of extensive hot wet packs applied locally. The patient should continue to walk briefly twice daily. Anticoagulants should be given and the prothrombin percentage should be kept down about 35 per cent of normal. One never needs to fear a hemorrhage at that level. I have had two patients in whom the phlebitis extended to the femoroiliac region where I did not use the anticoagulants. Dicumarol is sufficient.

Most men agree with the idea and use of the lumbar sympathetic block for any severe case of deep phlebitis with the resultant edema, cyanosis and cold foot. This should be used early and there should be no delay for several days or weeks. It should be repeated at twenty-four-hour intervals, if needed, to keep the leg and foot warm and dry. Many times I have seen it give much help, even though not used for several weeks after the onset of the phlebitis. In cases having a history of a severe deep phlebitis years before, I often use the block to see if any help could be expected following a sympathectomy. There is no point in using a block for the swollen but warm and dry leg and foot. It will not help. Linton does not advise a sympathectomy for the postphlebitic case. In his experience, the immediate good result has disappeared in two years. I cannot agree with this. Homans has urged a sympathectomy for the old postphlebitic with extensive dermatitis over a cold and clammy lower leg and foot. The ligation of the femoral or popliteal vein may give additional help. Time alone will tell.

I cannot urge too strongly the use of the routine, hot, wet pack for all these cases. Drinker has definitely shown that the hotter the pack to the point of tolerance, the more relaxation of the vessels and the greater the lymphatic drainage. The patient will not get burned if the blankets are wrung dry as with the Kenny pack for poliomyelitis, but they must not be put on with the cloths soaked and sopping wet.

BLUE CROSS PAYS MILLIONS TO HOSPITALS

Nearly a hundred million dollars, representing more than 88 per cent of income, was paid to hospitals by the voluntary, non-profit Blue Cross Plans for care of members during the first quarter of 1950, Richard M. Jones, Chicago, director, Blue Cross Commission of the American Hospital Association, recently announced

From a total income of $109,801,301, the ninety Blue Cross Plans of the United States and Canada paid $96,989,972 for member's care and used only $9,184,564 (8.37 per cent) for operating expenses.

There are more than 38,000,000 persons enrolled in the Blue Cross Plans in the United States and Canada, representing more than 24 per cent of the United States population and 21 per cent of the Canadian people.

In Memoriam

RALPH CRAWE ADAMS

Dr. Ralph C. Adams, a practitioner at Bird Island since 1906, died April 25, 1950. He was seventy years of age.

Dr. Adams was born at Utica, Pennsylvania, June 7, 1879. He was a graduate of Jefferson Medical College, Philadelphia, having received his M.D. in 1906.

Dr. Adams is survived by his wife, Hertha; a son, Jack, who is in the military service; a daughter, Margaret, of Denver, Colorado, and two sisters.

FREDERICK H. ROLLINS

Dr. F. H. Rollins, a prominent practitioner at St. Charles, Minnesota, since 1898, died at Rochester April 27, 1950, after a brief illness.

Dr. Rollins was born near Caledonia, Minnesota, September 30, 1867. He graduated from Rush Medical College in 1897 and practiced for a year in South Dakota before locating at St. Charles.

During World War I, Dr. Rollins served as commanding officer of a convalescent camp base hospital in France. He served as state senator from 1928 to 1934. He was a member of the Masonic Order and of the Order of Eastern Star.

Dr. Rollins is survived by his wife, Mary, two sons, Keith of Chicago and Pat of Minneapolis; one daughter, Mrs. C. D. (Margaret) Thompson of Chicago; and one stepson, Murray Olsen of Rock Rapids, Iowa.

Dr. Rollins was honored at a civic dinner in St. Charles in May, 1947, on the occasion of his fiftieth anniversary as a practicing physician. All his life he was an ardent fisherman and hunter and was most active in a variety of community projects.

CHARLES L. SCOFIELD

Dr. C. L. Scofield of Benson, Minnesota, died April 23, 1950, at the age of eighty-five years. He was born on a farm in Cannon Falls, Minnesota, on April 16, 1865, and in all of the years of his life he showed the results of his early background in his fine attitude towards the people among whom he practiced. He graduated from the University of Iowa in 1886 and began his practice in Saint Paul the same year but in 1890 he moved to the town of Benson where he practiced up to the time when he suffered a cerebral hemorrhage on March 29, 1947.

He had his first office in the Security State Bank building, and in 1900 he moved to the Colby block where he practiced until he built his own office building a number of years after that.

Dr. Scofield was almost a legend in the entire area surrounding Benson. He was truly the old type of country doctor braving the blizzards and winter weather and driving many miles with horse and buggy. No family was too lowly to receive administrations, at his hands, when he was called.

In 1936, when he completed fifty years in the practice of medicine, a testimonial banquet was given at which he was honored for the fine medical practice which he had carried on. Practically everyone who assisted in putting on the dinner had been brought into the world through his help.

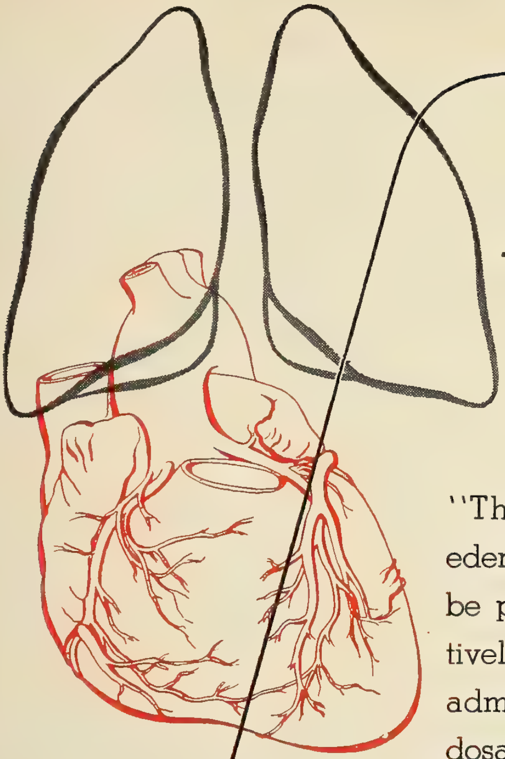
His fine attitude towards the public is shown by the fact that during his lifetime he was elected President of the first council; he was a long time member of the School Board; he was for years Chairman of the City Park Board; and was made Chairman of the Charter Commission which drew up the Charter for Benson, making it a city in 1908. At one time he was a member of the volunteer fire department, the manager of the baseball team and for many years was Chairman of the Board of Directors of the Benson Cemetery Association.

He took an active part in the business life of the city. He was at one time President of the Swift County Telephone Company and Security State Bank. He was a member of the Sons of the American Revolution; belonged to the Swift Lodge No. 129, A.F. & A.M.; and the Modern Woodmen of America, the AOUW, the Knights of Pythias, the Isaak Walton League, and the Woodmen of the World. His interest in children and young people in his home town shows him as Chairman of both the District and Local Boy Scout committees for several years. His interest in the early history of Swift County finds him the organizer and President of the Swift County Historical Society. His activities were not limited to the locality in which he lived but we find his honors coming from statewide organizations. In October, 1948, we find him awarded an honorary membership in the Minnesota Public Health Conference for distinguished service in public health. He served several years as president of the Swift County Health Association and helped organize the Minnesota Public Health Association and was its president from 1919 to 1923.

He was a member of the State Tuberculosis Commission and was most active in the various tuberculosis committees in the Minnesota State Medical Association. He was a member of the Kandiyohi-Swift-Meeker Medical Society of which he was secretary for approximately twenty-five years, and a member of the Minnesota State Medical Association of which he was at one time vice president. He was a member of the American Medical Association. He was a Great Northern Railroad surgeon for forty-five years, and in 1936 he received a life membership in the Great Northern Veterans Association. He was a lifetime member of the Pilgrim Congregational Church of Benson, and a member of the building committee which had charge of the erecting of the beautiful church edifice which houses this congregation.

He is survived by his wife, Mrs. Bertha Scofield, together with four grandchildren.

(Continued on Page 632)



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[1] Barach, A. L.: Edema of the Lungs, Am. Pract. *3*:27 (Sept.) 1948.

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CHARLES L. SCOFIELD

(Continued from Page 630)

Charles L. Scofield was a man of unusual talents, revered by all for his good works, and in his passing, those of us who knew him well feel a deep sense of loss and a keen hope that we may carry on in some manner the fine impressions which he made on the lives of us all. He was the finest type of American citizen, an honor to his profession, and a friend to all—truly a man among men.—B. J. Branton, M.D.

NELS WESTBY

Dr. Nels Westby, well-known and highly esteemed physician of Madison, Minnesota, died April 21, 1950, following a heart attack. He observed his sixty-fourth birthday the day before his death.

Dr. Westby was born April 20, 1886 in Brown County, South Dakota. He attended Augustana Academy in Canton, South Dakota, the University of Minnesota and St. Olaf College, where he graduated in 1909.

On August 29, 1909 he was married to Gusta Locken, and to this union eight children were born.

Dr. Westby received his medical degree from Cornell Medical College in New York in 1913 and served his internship at the Methodist Hospital in Brooklyn, New York.

In January, 1915, he entered into partnership with Dr. W. N. Lee in the Madison Clinic and became chief of staff of Ebenezer Hospital.

Dr. Westby was a member of the Camp Release Medical Society, the Minnesota State Medical Association and the American Medical Association. He was a Fellow of the American College of Surgeons and had recently been appointed to the National Christian Medical Society. He was mayor of Madison, had been a member of the Board of Education School District No. 74 since 1927, and was the present chairman. He was a charter member of the local Kiwanis Club.

Dr. Westby had served as trustee and deacon of the Madison Lutheran church. He served as president of the Brotherhood of the Evangelical Lutheran church in its formative years and had been a member of the Church Council of the Evangelical Lutheran church for the Southern Minnesota District.

He is survived by his wife, Gusta, one son, Norval, and five daughters: Mrs. Aubrey Edmonds of Grand Marais, Minnesota; Mrs. Norris Skogerboe of Brooklyn, New York; Mrs. Gunnar Pederson of Saint Paul; Mrs. Max Barzee of Moro, Oregon; Mrs. William Gualtieri, and Mary Westby, both of Madison.

One of the most persistently discouraging facts about cancer of the lung, is the long interval of ten months that elapses, on the average, between the patient's first visit to the doctor and the time when the diagnosis is made.—Overholt, R. H., and Schmidt, I. C., *New England J. Med.*, Nov., 1949.

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Reports and Announcements

AMERICAN CONGRESS OF PHYSICAL MEDICINE

The American Congress of Physical Medicine will hold its twenty-eighth annual scientific and clinical session August 28, 29, 30, 31 and September 1 at the Hotel Statler, Boston, Massachusetts. All sessions will be open to members of the medical profession in good standing with the American Medical Association. In addition to the scientific sessions, the annual instruction seminars will be held August 28, 29, 30 and 31. These seminars will be offered in two groups. One set of ten lectures will consist of basic subjects and attendance will be limited to physicians. One set of ten lectures will be more general in character and will be open to physicians as well as to therapists, who are registered with the American Registry of Physical Therapy Technicians or the American Occupational Therapy Association. Full information may be obtained by writing to the American Congress of Physical Medicine, 30 North Michigan Avenue, Chicago 2, Illinois.

AMERICAN COLLEGE OF PHYSICIANS

The American College of Physicians will conduct its 32nd Annual Session at St. Louis, Mo., April 9-13, inclusive, 1951. Dr. Ralph Kinsella of St. Louis is the general chairman and will be responsible for local arrangements and for the program of clinics and panel discussions. Dr. William S. Middleton, president of the College, Madison, Wis., will be in charge of the program of morning lectures and afternoon general sessions.

Secretaries of medical societies are especially asked to note these dates and, in arranging meeting dates of their societies, to avoid conflicts with the College meeting for obvious mutual benefits.

AWARD FOR RESEARCH IN INFERTILITY

The American Society for the Study of Sterility offers an annual award of $1,000 known as the Ortho Award, for an outstanding contribution to the subject of infertility and sterility. Competition is open to those in clinical practice as well as individuals whose work is restricted to research in the basic sciences. Essays submitted for the 1951 contest must be received not later than March 1, 1951. The prize essay will appear on the program of the 1951 meeting of the society. For full particulars, address the American Society for the Study of Sterility, 20 Magnolia Terrace, Springfield, Mass.

(Continued on Page 636)

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(Continued from Page 634)

COURSE IN POSTGRADUATE GASTROENTEROLOGY

The National Gastroenterological Association announces that its course in postgraduate gastroenterology will be given at the Hotel Statler in New York City on October 12, 13, 14.

The course, which will again be under the personal direction of Dr. Owen H. Wangensteen, professor of surgery, University of Minnesota Medical School, will cover the following subjects: diseases of the mouth, diseases of the esophagus, peptic ulcer diseases of the stomach, diseases of the pancreas, cholecystic disease, psychosomatic aspects of gastrointestinal disease, disease of the liver, diseases of the colon and rectum, and other miscellaneous subjects including pathology and physiology, radiology, gastroscopy, et cetera.

The distinguished faculty for the course has been chosen from medical schools in New York City as well as out of town.

For further information and enrollment write to the National Gastroenterological Association, Dept. GSJ, 1819 Broadway, New York 23, N. Y.

PLASTIC SURGERY AWARD

The Foundation of the American Society of Plastic and Reconstructive Surgery is offering awards of $300 (first prize) and $200 (second prize) and a certificate of merit for essays on some original unpublished subject in plastic surgery.

Competition is limited to residents in plastic surgery in recognized hospitals and to plastic surgeon who have been in such specific practice for not mor than five years. The first-prize essay will appear o the program of the forthcoming annual meeting o the American Society of Plastic and Reconstructiv Surgery, to be held in Mexico City November 2 through 29, 1950. Essays must be received befor August 15, 1950.

Full information can be obtained from the secretary, Dr. Clarence R. Straatsma, 66 East 79th Street New York, N. Y.

FELLOWSHIP IN MEDICINE AVAILABLE

The American College of Physicians announces that a limited number of fellowships in medicine will be available from July 1, 1951 to June 30, 1952. These fellowships are designed to provide an opportunity for research training either in the basic medical sciences or in the application of these sciences to clinical investigation. They are for the benefit of physicians who are in the early stages of their preparation for a teaching and investigative career in internal medicine. Assurance must be provided that the applicant will be acceptable in the laboratory or clinic of his choice and that he will be provided with the facilities necessary for the proper pursuit of his work.

The stipend will be from $2,200 to $3,200. Application forms will be supplied on request to the Amer-

(Continued on Page 638)

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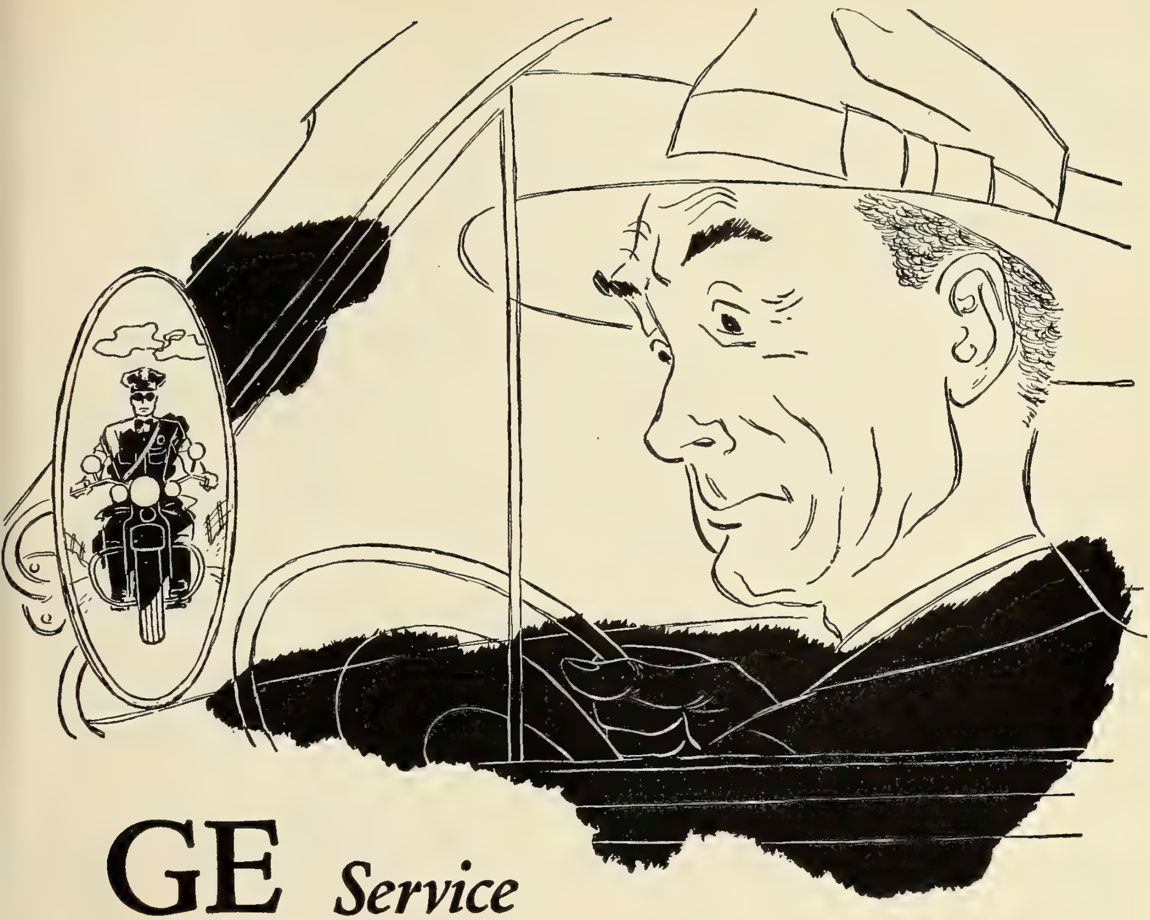

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FELLOWSHIPS IN MEDICINE AVAILABLE

(Continued from Page 636)

ican College of Physicians, 4200 Pine Street, Philadelphia 4, Pa., and must be submitted in duplicate not later than October 1, 1950. Announcement of awards will be made in November, 1950.

MISSISSIPPI VALLEY ESSAY CONTEST

The tenth annual essay contest of the Mississippi Valley Medical Society which provides a cash prize of $100, a gold medal and a certificate of award for the best unpublished essay on any subject of general medical interest (including medical economics and education) and practical value to the general practitioner of medicine will again be held in 1950. The winner will be invited to present his contribution before the fifteenth annual meeting of the Mississippi Valley Medical Society in Springfield in September, 1950. Further details may be obtained from Dr. Harold Swanberg, Secretary, 209 W.C.U. Building, Quincy, Illinois.

MINNESOTA SOCIETY OF INTERNAL MEDICINE

The spring meeting of the Minnesota Society of Internal Medicine was held in Duluth on May 27. Program chairman for the event was Dr. Paul G. Boman, Duluth. Eighteen papers on various topics in internal medicine were presented during the one-day session.

MINNESOTA SURGICAL SOCIETY

The Minnesota Surgical Society held its annual meeting in Rochester on May 12. Clinics in various phases of surgery were held at Colonial, St. Mary's, Kahler and Worrall Hospitals in the morning. The afternoon session consisted of presentation of papers.

Elected president of the society was Dr. Willard D. White, Minneapolis. Other officers elected include Dr. E. Starr Judd, Jr., Rochester, vice president, and Dr. M. G. Gillespie, Duluth, secretary-treasurer.

BROWN-REDWOOD-WATONWAN COUNTY SOCIETY

A talk on the Minnesota medical publicity program was a feature of the annual meeting of the Brown-Redwood-Watonwan County Medical Society held in New Ulm on May 18. Dr. E. J. Nielson, Mankato, discussed the publicity program prepared by the Minnesota State Medical Association. A discussion was also held on the possibilities of forming blood banks in the various cities of Brown County.

SOUTHWESTERN MINNESOTA SOCIETY

The regular monthly meeting of the Southwestern Minnesota Medical Society was held in Pipestone on May 8. Principal speaker at the meeting was Dr. Clarence Dennis, professor of surgery at the University of Minnesota, who spoke on "The Acute Abdomen."

(Continued on Page 640)

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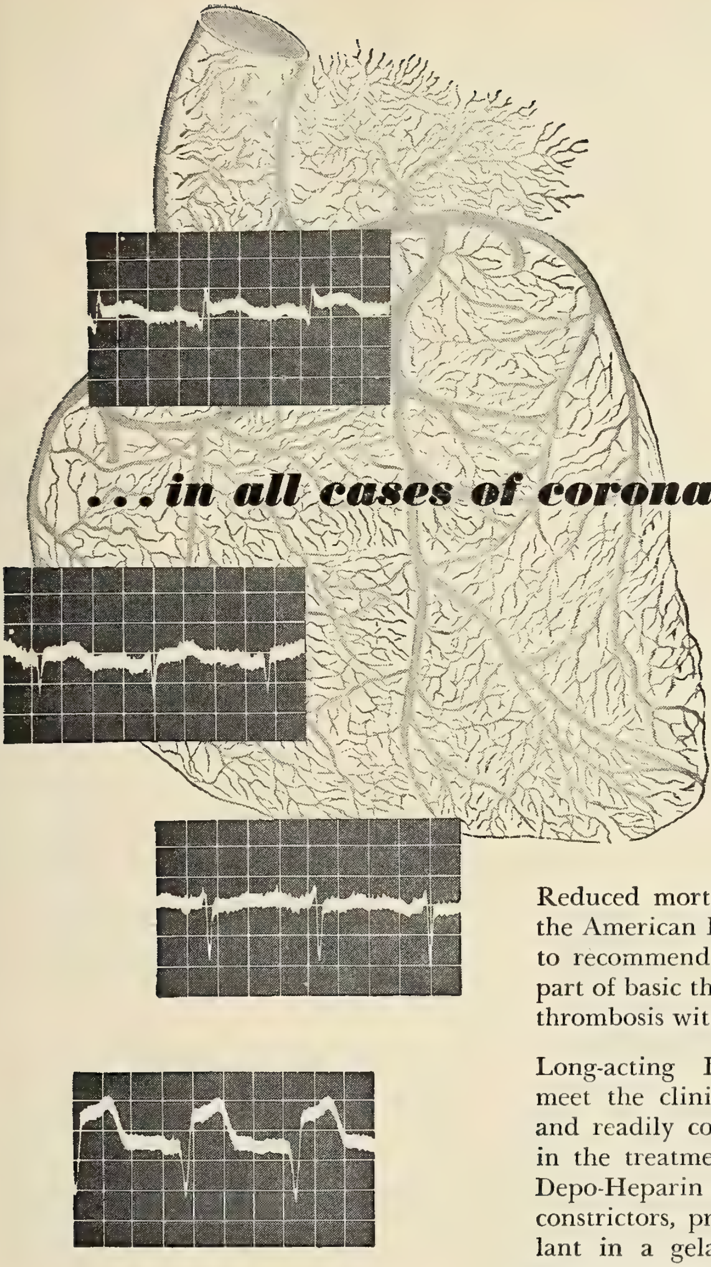

. . . in all cases of coronary thrombosis

Reduced mortality and morbidity have led the American Heart Association study group to recommend the use of anticoagulants as part of basic therapy "in all cases of coronary thrombosis with myocardial infarction."[1]

Long-acting Depo*-Heparin preparations meet the clinical requirements for prompt and readily controlled anticoagulant effects in the treatment of coronary heart disease. Depo-Heparin Sodium, with or without vasoconstrictors, provides the natural anticoagulant in a gelatin and dextrose vehicle to produce anticoagulant effects for 24 hours or longer with a single injection.

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1. Wright, et al: Am. Heart J. 36, 801 (Dec.) 1948.

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SOUTHWESTERN MINNESOTA SOCIETY

(Continued from Page 638)

During the business session the society's executive committee was instructed to consider the formation of a grievance committee to review criticism and complaints which might arise concerning medical care.

WASHINGTON COUNTY SOCIETY

The Washington County Medical Society held its regular monthly meeting at Forest Lake on May 9. At the meeting, which was for business only, members considered requests from the Social Welfare Department of the State of Minnesota and acted on the recommendations of the Committee on Public Education of the Minnesota State Medical Association concerning medical publicity.

A special meeting with the Welfare Board was planned for June 6 at Stillwater to consider fees.

The "forty education posters," recommended at the medical-press conference in Saint Paul on April 21, were the subject of a lively discussion that became fairly warm at times. Representatives of the four county newspapers also took part in the discussion. The final result: it was moved that all forty posters be run by the four newspapers in the county, to be paid for by members of the county medical society.

The society members also voted to establish a grievance committee, to be administered by the advisory committee.

Woman's Auxiliary

AUXILIARY HEARS NURSE RECRUITMENT PROGRAM

The Auxiliary of the Southwestern Minnesota Medical Society met at the home of Dr. and Mrs. F. L. Schade in Worthington on April 24 for a program on nurse recruitment.

Guest speaker was Marlene Erickson of Northwestern Hospital, Minneapolis. She spoke on methods of nurse recruitment through the local schools. Miss Erickson was introduced by Mrs. Marion Neilson, program chairman.

Mrs. David Halpern, Brewster, discussed what local communities and the medical auxiliary can do to encourage girls to enter the profession.

Dorothy Petsch, Worthington Hospital superintendent, told of plans for the nurse procurement program at the Worthington high school career day.

Special guests at the meeting were the new student nurses from Fairview Hospital in Minneapolis. The four girls went on duty in April. They are participating in the rural nursing affiliation program conducted through a local hospital.

The girls are Delores and Doris Johnson, twin sisters from Litchfield; Aida Hoff of Grantsburg, Wisconsin, and Erma Hellickson of Scobey, Montana.

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Don't go hog wild—

on your ACCOUNTS RECEIVABLE

Usually the last one to be paid is the family doctor, and very often, no attention is given by him to the very important matter of commencing collection work *promptly after due date.* Too many doctors are going "hog wild" on this point and fail to realize its significance. Though startling as they may be, the figures shown in the following table are the factual result of authoritative studies, and they apply to the doctor as well as to the businessman.

COLLECTIBILITY OF ACCOUNTS—BASED ON AGE

Accounts	60	days	past due are	93%	collectible.
Accounts	90	days	past due are	85%	collectible.
Accounts	6	months	past due are	70%	collectible.
Accounts	1	year	past due are	40%	collectible.
Accounts	2	years	past due are	25%	collectible.
Accounts	3	years	past due are	18%	collectible.
Accounts	5	years	past due are practically lost.		

THE OUTLOOK ISN'T BRIGHT. More business and professional men look for lower profits than hope for higher earnings this year. That's because of lower prices and higher costs. Proper credit control is more important today than at any time since the war. Jobless at present are at a postwar high of 4½ million. Unemployment is likely to prove more of a headache than inflation.

NOW IS THE TIME to go after those "Receivables." You can't afford to let even one of them get away when it's so easy to get your money by using our tested and proven plan. This system has the "velvet touch" with the "dynamite punch." Your money is paid directly to you and you retain your debtor's good will. Get started now by using the coupon below or just sign and return for more information.

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We want the collection service checked below:
☐ 35 accounts—$35. ☐ 105 accounts—$100.
It is understood you will send all necessary forms, a guarantee, and you will do all the work. We will pay 20% of all amounts collected.
☐ Send me more information.

Name ....
Firm ....
Address ....

✦ Of General Interest ✦

The directory issue of **Graphics,** the official publication of the Association of Medical Illustrators, contains the name, address, training, professional experience and reference to major published work of each member. The issue, which was published on June 1, is available to persons requiring medical illustration service and will be sent, free of charge, upon request to the editor, Miss Helen Lorraine, 5212 Sylvan Road, Richmond 25, Virginia.

* * *

Captain Eugene V. Meyerding, M.C., U.S.A.F., son of Dr. and Mrs. E. A. Meyerding of Saint Paul, was married on May 19 to Patricia Elliot Lord, daughter of Colonel and Mrs. Wilbur Storn Elliot of Honolulu. Captain Meyerding is surgical resident at the Triplet General Hospital in Honolulu. He is a graduate of St. Thomas Military Academy and the University of Minnesota Medical School.

* * *

Dr. Alan Challman, Minneapolis, was scheduled to return on June 26 from a six-week tour of Army hospitals in Germany and Austria. He was selected by the Surgeon General of the Army to make the visits, which were for purposes of teaching and consultation.

* * *

Four physicians, comprising the **Litchfield Clinic,** are now conducting their practices in a newly constructed clinic building in Litchfield. The physicians are Dr. H. E. Wilmot, Dr. C. A. Wilmot, Dr. D. E. Dille and Dr. W. A. Chadbourn.

Their new clinic building, which was completed early this spring, is a one-story structure of modern design and construction. It houses four physicians' suites, each one consisting of an office and two treatment rooms, plus a laboratory, x-ray room, operating room, business office, and pharmacy. The building measures 55 by 66 feet, has a full basement for storage and other facilities, and is designed so that the flat roof can be flooded with a layer of water for cooling in the summer.

An open house, at which the clinic's facilities were open for public inspection, was held on April 1 and was attended by a large number of local residents.

* * *

Members of the Scott-Carver County Medical Society heard an address by **Dr. Edward T. Evans,** Minneapolis, at their meeting on April 18. Dr. Evans presented an illustrated lecture on the differential diagnosis of back pains, stressing the diagnosis of slipped intervertebral disc.

* * *

Dr. Paul Carpenter, formerly of Kansas City, Kansas, has become a staff member of the Oliver Clinic in Graceville. He began his duties at the clinic on April 3.

Dr. Gordon R. Kamman, Saint Paul, has been named deputy commissioner of mental health in Minnesota by Dr. Ralph Rossen, commissioner. **Dr. Lawrence R. Gowan,** Duluth, has been appointed supervisor of the consultative services. Both men will serve on a part-time basis while continuing the private practice of pyschiatry.

* * *

Dr. Clyde A. Undine, Minneapolis, attended the convention of the American College of Physicians in Boston, Massachusetts, April 17 through 21.

* * *

It was announced in May that **Dr. Robert M. Lundblad,** Duluth, planned to begin the practice of medicine in Clara City on July 1. Dr. Lundblad is a graduate of the University of Minnesota Medical School.

* * *

Dr. Andrew Sinamark, Hibbing, was a member of a three-man panel discussion on socialized medicine at a meeting of the Parent-Teachers' Association in Nashwauk on May 23.

* * *

Thirty-nine former fellows and residents of **Dr. Henry E. Michelson** gathered for a testimonial dinner to him at the Minneapolis Club on May 5. The guest list included dermatologists from Chicago, Cincinnati and the Mayo Clinic. Dr. Michelson had completed twenty-five years of service as chief of the division of dermatology at the University of Minnesota. He was presented with a silver service at the dinner, which was arranged by Drs. Laymon, Lynch, Madden and Rusten.

Previously, on April 15, Dr. Michelson was elected president of the American Board of Dermatology and Syphilology at a meeting held in Washington, D. C.

* * *

Dr. S. A. Slater, superintendent of the Southwestern Minnesota Sanatorium, was re-elected to the board of directors of the National Tuberculosis Association at a meeting in Washington, D. C., on April 28 and 29. Dr. Slater's new term as a director will be his twelfth.

* * *

On May 6, **Dr. Joseph Kurtin** was married to Miss Ruth Witkowski in Cudahy, Wisconsin. Dr. Kurtin is now practicing medicine in Blooming Prairie with his brother, Dr. H. J. Kurtin.

* * *

Dr. Albert J. Schroeder was guest pediatric speaker at a meeting of the American Society of Dentistry for Children on April 18. The meeting was held in Coffman Memorial Union at the University of Minnesota.

(Continued on Page 644)

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Failure

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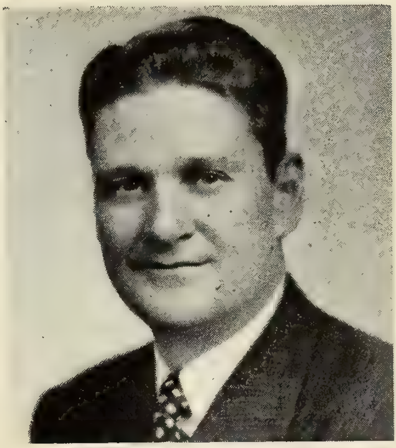

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(Continued from Page 642)

A plaque in memory of **Dr. Justus Ohage,** who performed the first successful operation in this country for the removal of a gall bladder, was presented to St. Joseph's Hospital, Saint Paul, at a staff meeting on May 10. The presentation was made by Dr. Ohage's son, Dr. Justus Ohage, Jr., of Saint Paul. The gall-bladder operation was performed at St. Joseph's Hospital on September 24, 1886, and was a milestone in gall-bladder surgery in this country.

* * *

Early in May **Dr. W. R. Miller,** Red Wing, attended a two-day meeting of the Henry Ford Hospital Medical Association at Detroit, Michigan. Dr. Miller presented a paper entitled, "The Effect of Radioactive Phosphorus on Gastric Acidity."

* * *

A "good citizenship" medal and a citation were presented to **Dr. Karl Pfuetze,** medical director of the Mineral Springs Sanatorium, at an Americanism Day program in Cannon Falls on May 1. The presentation was made by the Nelson-Scofield post of the Veterans of Foreign Wars, sponsors of the program.

* * *

Dr. Leo G. Rigler, chief of the radiology department at the University of Minnesota, will be one of the medical mission sponsored by the Unitarian Service Committee to visit Japan in July to present present-day medical advances to representatives forty-six Japanese medical schools.

* * *

Dr. Burton Rosenholtz has returned to Saint Pa and resumed the practice of pediatrics, with office at 1999 Ford Parkway.

* * *

Dr. H. M. Wikoff, Bemidji, has been named chai man of the local county medical society, followin the resignation of Dr. Charles W. Vandersluis. O May 8, Dr. Wikoff attended a meeting of the economics committee of the Upper Mississippi Medica Society at Brainerd.

* * *

Dr. and Mrs. M. C. Piper, Rochester, left on Apri 22 for La Canada, California, where they are nov living. Shortly before leaving Rochester, Dr. Pipe had retired as a staff member of the Mayo Clinic.

* * *

A talk on socialized medicine was given by Dr **Roy C. Pedersen,** Duluth, at a meeting of the Men' Brotherhood of the First Lutheran Church in Dulut on April 18.

* * *

After practicing in Grove City for a year and a half **Dr. Kenneth J. Kelley** moved his office to Litchfiel on April 1. A graduate of the University of Minnesota Medical School in 1944, Dr. Kelley interne at Swedish Hospital, Minneapolis, and then serve

dorestro

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Aqueous Suspension
#270, 10 cc. . . 50,000 Units
#247, 10 cc. . . 20,000 Units
#252, 1 cc. . . 20,000 Units
#272, 1 cc. . . 10,000 Units
#267, 10 cc. . . 10,000 Units

Minnesota State Medical Association's Annual Convention

Duluth, Minnesota

June 12, 13, & 14, 1950

OFFICIAL REGISTRATION FIGURES

Doctors	1,053
Nurses, Dietitians, Technicians, Social Workers and Medical Secretaries	457
Scientific Exhibitors	42
Commercial Exhibitors	235
Women's Auxiliary	330
Guests (Miscellaneous)	176
TOTAL	2,293

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the Navy until late in 1946. He then practiced in ig Fork before moving to Grove City.

* * *

Among the speakers at the annual meeting of the innesota Society of Medical Technologists in Mineapolis on May 19 was **Dr. Lyle A. Weed**, Rocheser, who discussed the bacteriological examination of issues.

* * *

Dr. Orville Rotnem, formerly of Mabel, is now onducting his practice in Harmony. A graduate of he University of Minnesota Medical School, Dr. otnem served his internship at Milwaukee County ospital, after which he became a surgical resident there. Before beginning his practice at Mabel, he served in the Army.

* * *

Dr. D. M. Simonetti, formerly located at 328 East Hennepin, Minneapolis, has moved his office to 510 Physicians and Surgeons Building.

* * *

"Tuberculosis Control in Institutions for the Mentally Ill" is the title of a paper being presented by **Dr. Edmund W. Miller**, superintendent of the Anoka State Hospital, at the annual meeting of the American College of Chest Physicians in San Francisco on June 25.

Principal speaker at a St. Luke's Hospital fund drive dinner in St. Paul on April 25 was **Dr. Owen H. Wangensteen,** chief of surgery at the University of Minnesota. The hospital was starting a campaign to raise $750,000 for a modernization program.

* * *

Dr. Gerald N. Hofmann, Cannon Falls, was married to Miss Ardis Nolda Hougo in Cannon Falls on April 12. Dr. Hofmann is assistant medical director at the Mineral Springs Sanatorium.

* * *

It was announced on April 17 that **Dr. Nels G. Mortenson** had resigned from the staff of the Fergus Falls State Hospital to accept a position on the staff at the Minnesota Soldier's Home in Minneapolis. Dr. Mortenson had been affiliated with the Fergus Falls hospital since November, 1944.

* * *

Dr. Frederic F. Wippermann, Minneapolis, was elected president of the North Central Alumni Association of **Phi Beta Pi,** medical fraternity, at the association's annual meeting in Minneapolis in April. Other officers elected include Dr. Karl Sandt, vice president, and Dr. Howard Frykman, secretary-treasurer, both of Minneapolis. Dr. Norbert O. Hanson, Rochester, and Dr. Phillip Hollenbeck, St. Cloud, were elected members-at-large.

* * *

Two Red Wing physicians presented papers at a meeting of the Saint Paul Surgical Society on April 19. Dr. E. H. Juers spoke on "X-Ray Diagnosis of Abnormalities of the Veins of the Arms." Dr. R. F Hedin discussed the results of an investigation into the effect of radioactive substances on stomach acidity.

* * *

At a meeting in Albert Lea on May 10 sponsored by the Freeborn County Public Health Society, **Dr. Benjamin Spock,** director of the Child Guidance Clinic in Rochester, spoke on "The Emotional versus the Democratic Way of Dealing with Emotional Problems in Childhood."

* * *

Dr. William B. Gallagher, Waseca, discontinued his practice on April 20 and reported to Valley Forge General Hospital, Phoenixville, Pennsylvania, on May 1 for indoctrination into the Army. A graduate of the University of Minnesota in 1947, Dr. Gallagher served his internship at Milwaukee County Hospital. His term of service in the Army is expected to be two years.

* * *

At a meeting of the Crookston Rotary Club on May 4, **Dr. D. E. Pohl** of Crookston talked on the subject of heart disease.

* * *

Dr. Martin O. Wallace, Duluth, was moderator at a panel discussion on "The Whole Child" at the Duluth and Arrowhead Health Day on April 14.

(Continued on Page 648)

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ANNOUNCES CONTINUOUS COURSES

SURGERY—Intensive Course in Surgical Technic, two weeks, starting June 19, July 24, August 21.

Surgical Technic, Surgical Anatomy and Clinical Surgery, four weeks, starting July 10, August 7, September 11.

Personal Course in General Surgery, two weeks, starting September 25.

Surgery of Colon and Rectum, one week, starting September 11.

Esophageal Surgery, one week, starting October 16.

Breast and Thyroid Surgery, one week, starting June 26, October 2.

Thoracic Surgery, one week, starting June 12, October 9.

Gallbladder Surgery, ten hours, starting June 19, October 23.

Fractures and Traumatic Surgery, two weeks starting June 12, October 9.

Basic Principles in General Surgery, two weeks starting September 11.

GYNECOLOGY—Intensive Course, two weeks, starting June 19, September 25.

Vaginal Approach to Pelvic Surgery, one week, starting September 18.

OBSTETRICS—Intensive Course, two weeks, starting September 11.

MEDICINE—Intensive General Course, two weeks, starting October 2.

Electrocardiography and Heart Disease, two weeks, starting July 17.

Gastroscopy, two weeks, starting July 17, September 25.

DERMATOLOGY—Formal Course, two weeks, starting October 16. Informal Clinical Course every two weeks.

UROLOGY—Intensive Course, two weeks, starting September 25.

Cystoscopy, Ten Day Practical Course, every two weeks.

General, Intensive and Special Courses in all Branches of Medicine, Surgery and the Specialties.

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*Laboratories in Minneapolis
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Principal Cities of Upper Midwest*

(Continued from Page 646)

Dr. Thomas J. Dry, Rochester, will be the new president of the Minnesota Heart Association, succeeding Dr. John F. Briggs, Saint Paul. He will begin his new duties at the annual meeting of the association in July. Secretary of the organization is Dr. Earl E. Barrett, Duluth.

* * *

A survey of facilities available for care of the chronically ill in Ramsey County was made during May by the Saint Paul Area Public Health Council and the Women's Auxiliary of the Ramsey County Medical Society. **Dr. Ralph L. Olsen,** chairman of the council's committee on chronic and convalescent care, said that the information compiled would be used by hospitals, rest and nursing homes and other institutions in planning for helping the chronically ill.

* * *

Dr. John M. Adams, associate professor of pediatrics at the University of Minnesota, has been named chairman of the department of pediatrics in the new medical school now being organized at the University of California at Los Angeles. Although classes at the new school will not begin until 1952, Dr. Adams will assume his duties there this fall.

A graduate of Columbia University College of Physicians and Surgeons, Dr. Adams interned at New Haven General Hospital, then obtained a Ph.D. degree at the University of Minnesota in 1937. H was in private practice in Minneapolis for six year then joined the staff of the University on a full-tim basis in 1943.

* * *

It was announced on April 21 that **Dr. S. B. Seit** planned to return to Barnesville to practice early i May. Dr. Seitz moved from Barnesville to Richardton, North Dakota, last fall.

* * *

Dr. O. F. Mellby, Thief River Falls, left on Ma 6 for New York City, from where he planned to fl to Norway for six weeks of visiting relatives an sightseeing.

* * *

At the annual meeting of the North Central Section of the American College Health Association held at the University of Wisconsin on April 28 **Dr. J. W. Hanson,** director of Carleton Colleg health service, was installed as president of the organization.

* * *

Dr. Robert W. Wheeler has joined the staff of th Edina Medical Center. Formerly on the staffs of th University and Veterans Hospitals in Minneapolis Dr. Wheeler will specialize in otolaryngology.

* * *

Dr. Merton A. Johnson, Storden, was elected chairman of the Cottonwood County Health Council a its annual meeting in Storden on April 25.

THE VOCATIONAL HOSPITAL

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Minneapolis Minnesota

The American Cancer Society recognized Min- esota's leadership in cancer detection at an award inner in Minneapolis late in April. The Minnesota ivision of the American Cancer Society was pre- ented with a plaque honoring Minnesota for its rogress in detecting internal cancer. The plaque as accepted on behalf of the organization by **Dr. rthur H. Wells,** Duluth, president of the Minne- ota Division.

* * *

On May 15, **Dr. Norman Pullman,** formerly of ake City, Iowa, began practice in Valley Springs, us giving the community its second physician.

* * *

During most of April and May, **Dr. and Mrs. F. H. rusen,** Rochester, were in Europe where Dr. Krus- n delivered six lectures on various phases of physi- al medicine and rehabilitation. Among cities in hich he spoke were Copenhagen, Edinburgh, Lon- on and Dublin.

* * *

Dr. Charles W. Parker, Wadena, presented a talk n socialized medicine at a meeting of the Wadena ions Club on May 8. He described the bad situation roduced by socialized medicine in England.

* * *

The engagement of **Dr. E. Harvey O'Phelan** to iss Kathleen Elizabeth Bartl was announced on ay 7. Their wedding was planned for June 10 in aint Paul. Dr. O'Phelan, a graduate of the Uni- ersity of Minnesota Medical School, is a fellow in rthopedic surgery at Minneapolis Veterans Hos- ital.

* * *

Dr. George H. Olds, New Richland, was named ecretary-treasurer of the Waseca County Medical ociety on May 2. Dr. Olds was named to fill the nexpired term of Dr. William Gallagher, who was alled into military service.

* * *

Announcement was made on May 4 that **Dr. Don ucher** of Sioux City, Iowa, would begin the prac- ice of medicine in Starbuck about July 1.

* * *

The Minnesota Branch of the American Medical omen's Association had a luncheon meeting at the uluth Atheletic Club on June 12, the first day of he State Convention.

Dr. Selma Mueller of Duluth gave an interesting alk of her medical experience in China. Dr. Nellie arsness of Saint Paul, who is regional director, is lso the Minnesota delegate to the annual meeting f the American Medical Women's Association in ebble Beach, California, June 19-22.

* * *

It was announced on May 13 that Dr. Hector rown, formerly of Bemidji and recently of New ork State, had purchased the private hospital at alker belonging to **Dr. O. F. Ringle** and would ake possession on June 1.

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$75.00 weekly indemnity, accident and sickness Quarterly
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HOSPITAL NEWS

At a special meeting of the Gaylord Community Club on April 27, a resolution was passed to construct during the summer a municipal hospital for **Gaylord** and the surrounding area. The quick action was prompted by an announcement by Dr. D. C. Olson that he planned to close his hospital permanently. Dr. Olson agreed to keep his hospital open until the new hospital was completed, probably this coming fall.

* * *

St. Lucas Deaconness Hospital, Faribault.—Dr. Paul F. Meyer, Faribault, was elected president of the St. Lucas Deaconness Hospital medical staff at a meeting held on May 9. Other officers elected include Dr. C. A. Rohrer, Waterviller, vice presiden; Dr. J. J. Kolars, Faribault, secretary, and Dr. F. R. Huxley, Faribault, member-at-large on the executive committee.

* * *

Kanabec Hospital, Mora—Dr. C. S. Bossert of Mora was elected chief-of-staff of the Kanabec Hospital at an organizational meeting of the staff on May 11.

* * *

Dedication of the new **Louis Weiner Memorial Hospital** in Marshall took place on May 25. When completely furnished, the new hospital will have approximately fifty beds, 12 bassinettes and four cribs.

The dedication ceremonies included a presentation of the hospital staff and an address by Governor Luther W. Youngdahl.

BLUE CROSS-BLUE SHIELD NEWS—June, 1950

Blue Shield enrollment more than doubled in or year's time. On March 30 of this year there we 315,226 Minnesotans enrolled in Blue Shield compare with 151,711 enrolled on March 30 a year ago. Enrol ment in March was especially high with 22,771 Minn sotans added to Blue Shield rolls; of these, 12,367 ar non-group subscribers whose contracts went into effe March 1.

Also more than doubled are the Blue Shield benefit subscribers received during the first quarter of this yea compared with the same period in 1949. This year, Blu Shields benefits amounted to $411,133 during the firs quarter compared with $191,116 subscribers receive in Blue Shield benefits during this same three-montl period in 1949. Payments to doctors during March fo services to Blue Shield subscribers totalled $181,62 which is $49,380 more than the payments made t doctors during February.

Of the total 10,289 claims submitted during the firs quarter of this year, representing 12,679 medical surgical services to Blue Shield subscribers, 79 per cen or 8,132 claims were for Blue Shield services subscriber received in hospitals; 20.6 per cent or 2,118 claims wer for services received in doctors' offices, and .4 per cen or 39 claims were for Blue Shield services subscriber received in homes.

Blue Shield benefits for surgical procedures during this three-month period totalled $255,174.53. Of these surgical procedures, benefits for appendectomies were

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e highest, amounting to $48,525; gynecology second ghest, amounting to $33,916; bones, joints and tendons ird highest, amounting to $30,550; tonsillectomies urth highest, amounting to $19,512 in Blue Shield nefits.

Medical care to Blue Shield subscribers during this ree-month period amounted to $89,711 and obstetrical re amounted to $47,335 in benefits. Of the related rvices provided by Blue Shield, endoscopy accounted r $7,840, x-ray for $7,204, anesthesia for $2,647, sisting and after care for $1,220 of the Blue Shield nefits provided during this three-month period.

Persons in the lower income group who receive unnited subscriber benefits incurred 31.5 per cent of e total Blue Shield claims during the first three onths of this year.

Blue Shield and Blue Cross plans were explained to ctors, hospital administrators and trustees at meetings ld in Glenwood, Redwood Falls, Owatonna, Duluth, emidji, and the Twin Cities in conjunction with eetings of the Minnesota Hospital Association during arch and April.

Arthur M. Calvin, executive director of the Blue ross and Blue Shield plans, also gave lectures to niversity of Minnesota hospital administration and ur-year medical students concerning these non-profit ans. Blue Cross and Blue Shield will also be dissed at medical staff meetings of various hospitals ıring the next several months.

Blue Cross enrollment as of March 31, 1950, reached e million mark with 1,004,084 Minnesotans enrolled.

ROGRESS IN MATERNAL AND NFANT HEALTH IN MINNESOTA

(Continued from Page 587)

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BOOKS RECEIVED FOR REVIEW

BREAST DEFORMITIES AND THEIR REPAIR. Jacques W. Maliniac, M.D. Clinical Professor of Plastic Reparativ Surgery, and Associate Attending Plastic Reparative Surgeon New York Polyclinic Medical School and Hospital, New Yorl City; Attending Plastic Surgeon, Sydenham Hospital; Diplo mate, American Board of Plastic Surgery. 193 pages. Illus Price $10.00, cloth. New York: Grune & Stratton, 1950.

THE MANAGEMENT OF THE PATIENT WITH SEVER BRONCHIAL ASTHMA. Maurice S. Segal, M.D. Assistan Professor of Medicine, Tufts College Medical School; Directo Department of Inhalational Therapy, Boston City Hospital Boston, Massachusetts. 158 pages. Illus. Price, $3.50, cloth Springfield, Illinois: Charles C. Thomas, 1950.

PARKINSON'S DISEASE. Walter Buchler. 79 pages. Pric $1.00, paper cover, $2.00, cloth. London, England: Walte Buchler, 1950.

MINNESOTA STATE BOARD OF MEDICAL EXAMINER

Minneapolis Man Pleads Guilty

(Continued from Page 617)

an information charging him with the crime of swindling. Judge Larson stayed the sentence and place the defendant on probation for five years.

Catterson, who has no medical education of an kind, obtained $100 from a north Minneapolis famil on or about June 24, 1949. Catterson had offered t perform an abortion but disappeared after obtaining th money. Catterson was not located until April 7, 1950 at which time he was placed under arrest. Catterson readily admitted obtaining the $100, but stated that he never intended to do an abortion and had used those representations for the purpose of obtaining money Nevertheless, Minneapolis police officers found a speculum and a syringe in Catterson's room. Catterson als admitted that he had two or three catheters in his possession, but these were not found.

Catterson stated to the Court that he was born in 1899; that he had been married and divorced four times. Catterson also admitted having a previous conviction in Lancaster County, Pennsylvania, for the crime of adultery. Judge Larson, in sentencing the defendant, told him that the Court was not optimistic about Catterson making good on probation; nevertheless, it was the opinion of every one concerned, that in view of the fact that twenty-four years had elapsed between Catterson's first conviction and his present violation of the law, an opportunity should be given him to demonstrate that he could comply with the laws of the State of Minnesota.

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WANTED—Second hand Green's Refractoscope and stand. Must be in good condition. Address E-196, care Minnesota Medicine.

FOR SALE—Medical library, surgical and diagnostic instruments, and a large number of orthopedic and fracture splints, formerly owned by the late Dr. Henry C. Cooney. For prices and further information write Mrs. H. C. Cooney, Princeton, Minnesota.

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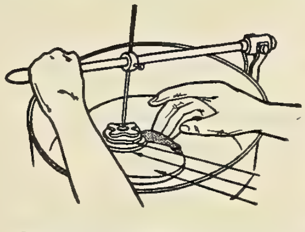

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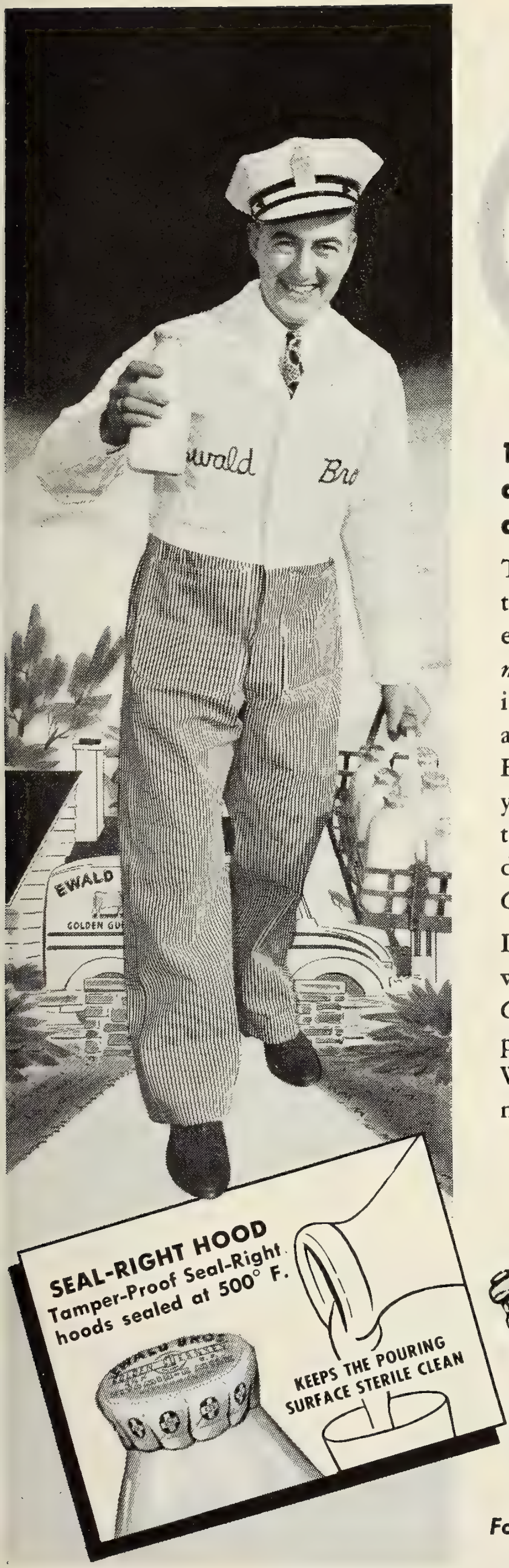
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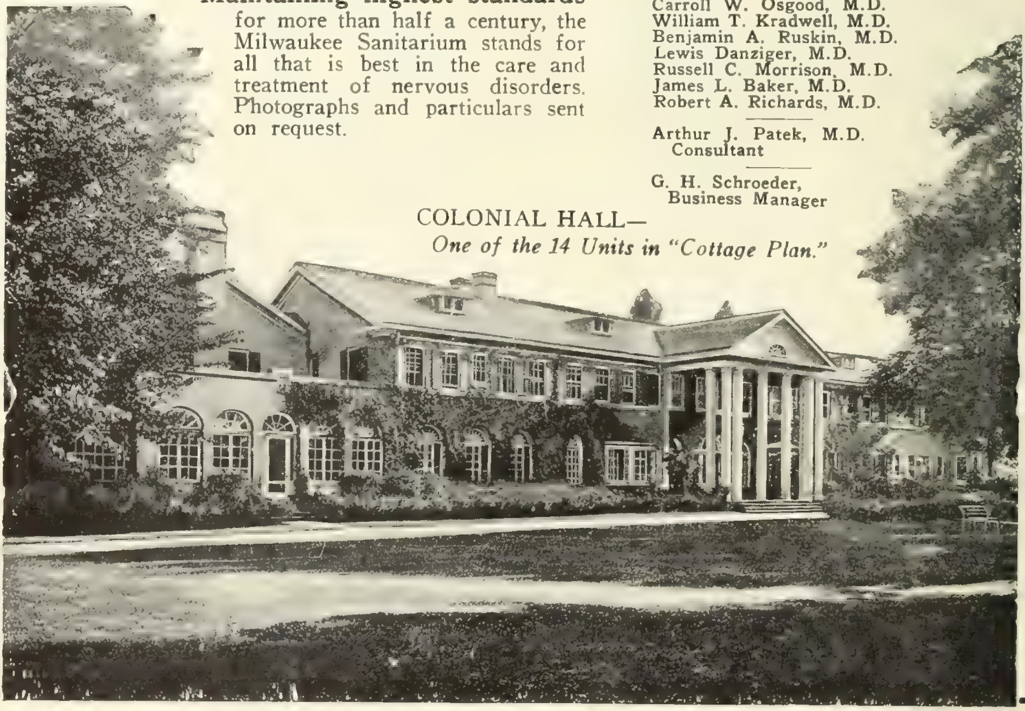

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Minnesota Medicine

urnal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

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tered at the Post Office in Saint Paul as second class mail matter. Accepted for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized July 13, 1918.

MINNESOTA MEDICINE

Official Journal of the Minnesota State Medical Association

Published by the Association under the direction of its Editing and Publishing Committee

Office of Minnesota State Medical Association,
493 Lowry Medical Arts Bldg., Saint Paul 2, Minnesota.

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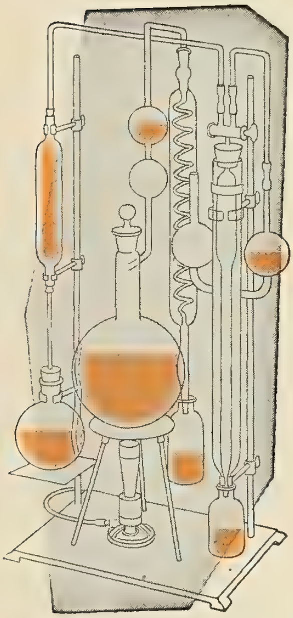

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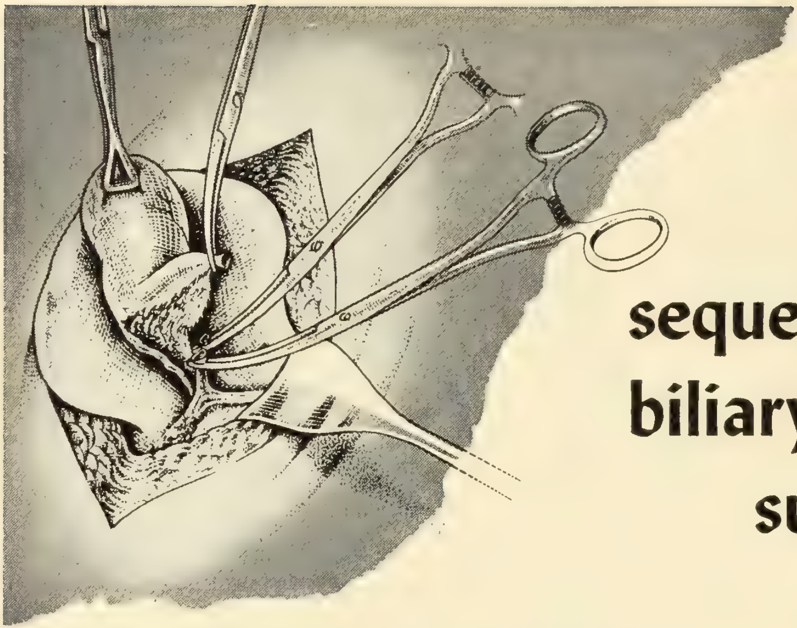

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1. Best, R. R.: Ann. Surg. *128:* 348 (Sept.) 1948.

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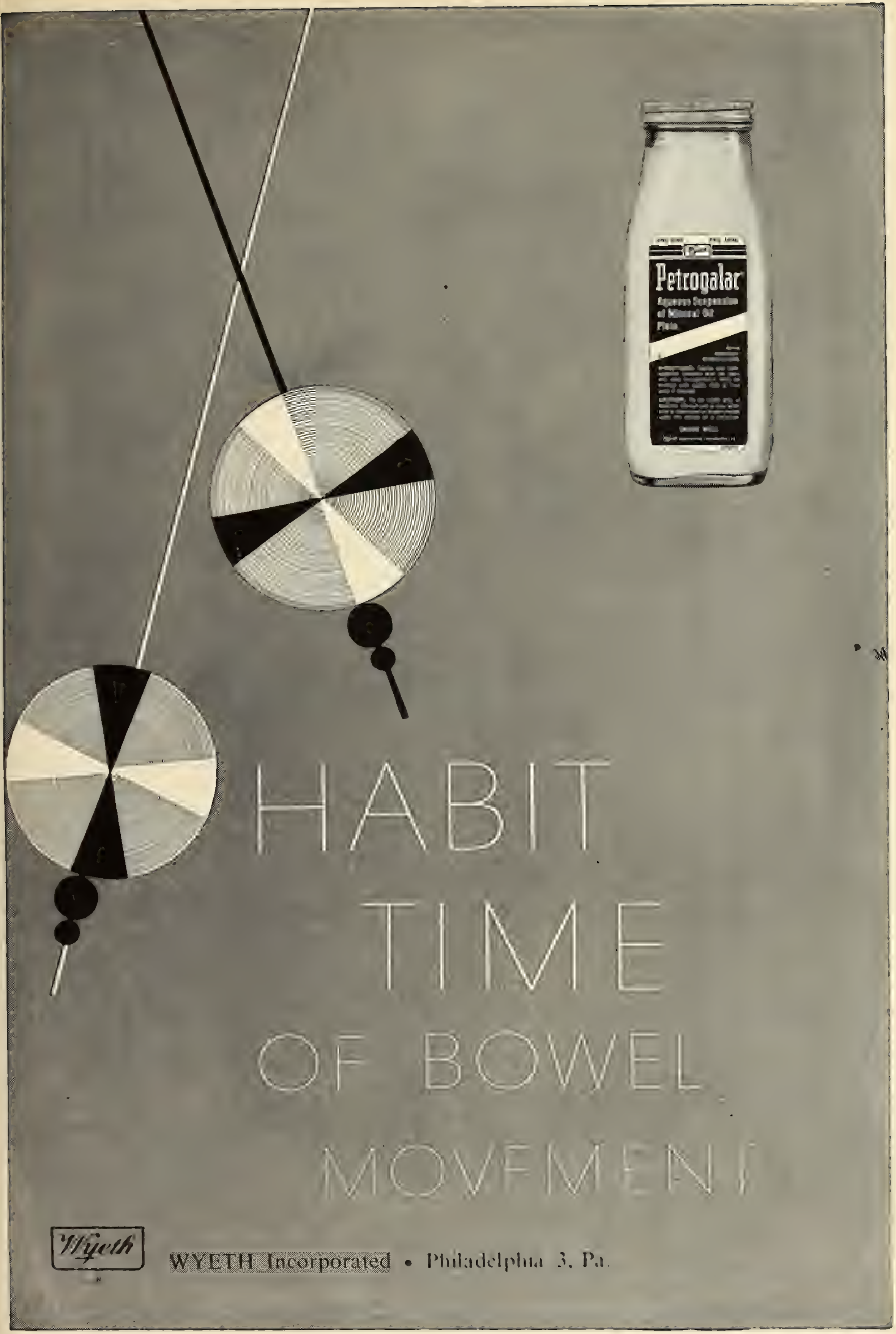
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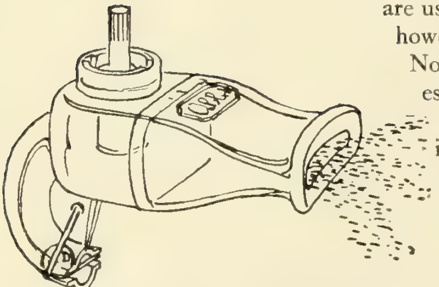

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1. Krasno, L.R., Grossman, M.I., and Ivy, A.C. (1949), The Inhalation of 1-(3',4'-Dihydroxyphenyl)-2-Isopropylaminoethanol (Norisodrine Sulfate Dust), J. Allergy, 20:111, March. 2. Krasno, L.R., Grossman, M., and Ivy, A.C. (1948), The Inhalation of Norisodrine Sulfate Dust, Science, 108:476. Oct. 29.

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*Perloff, W. H.: Am. J. Obst. & Gynec. 58:684 (Oct.) 1949.

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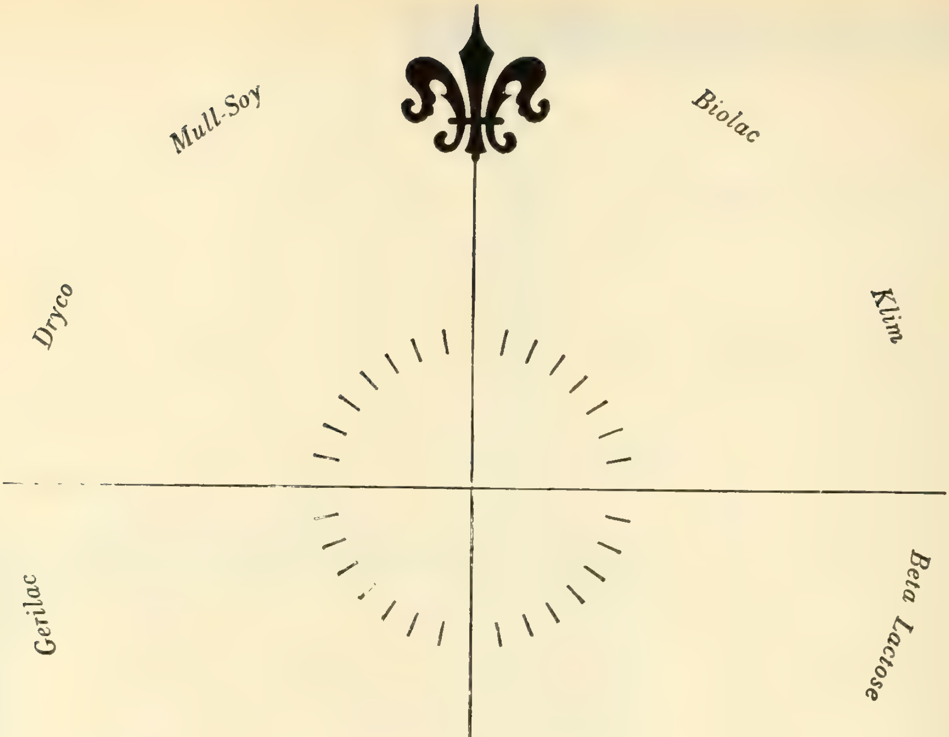

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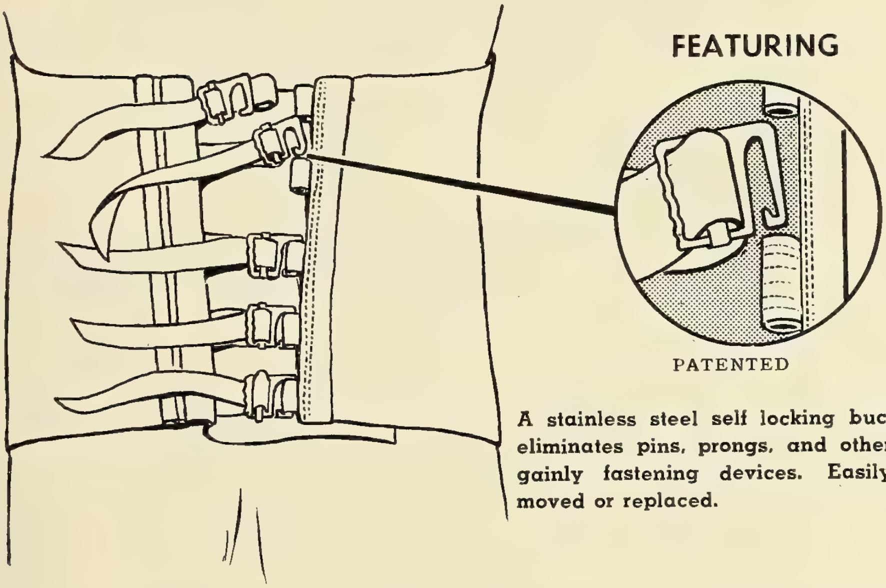

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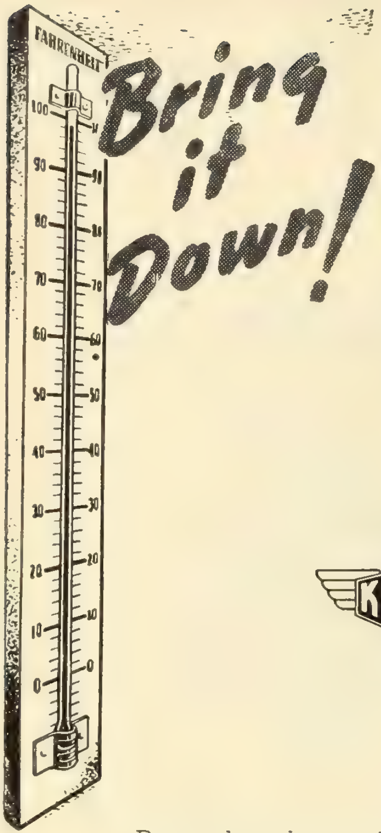

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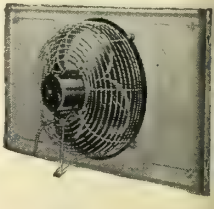

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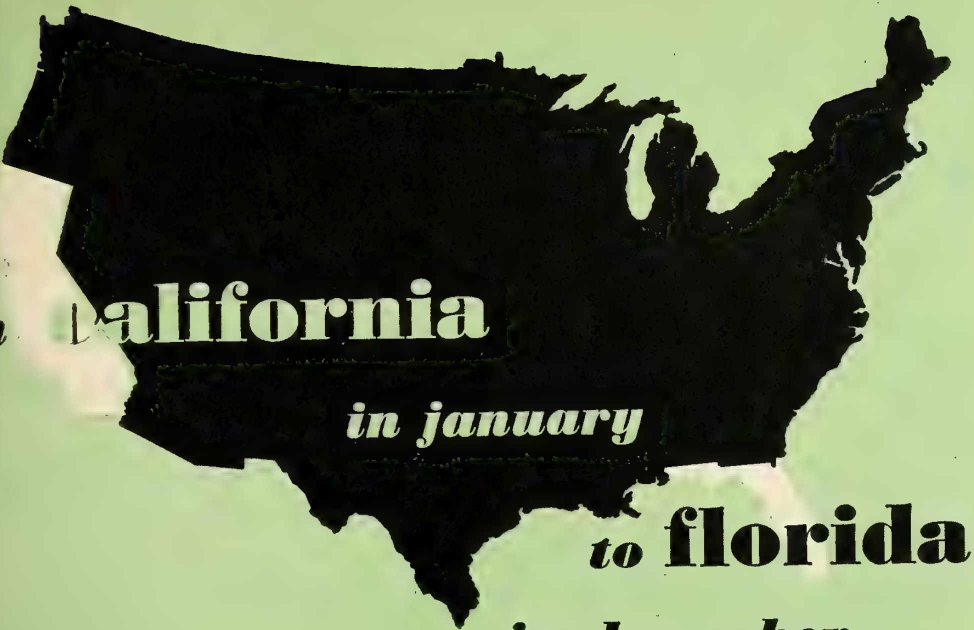

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*Orent-Keiles, E., and Hallman, L. F.: The Breakfast Meal in Relation to Blood-Sugar Values, Circular No. 827, United States Department of Agriculture, Bureau of Human Nutrition and Home Economics, Agricultural Research Administration, Dec., 1949.

The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

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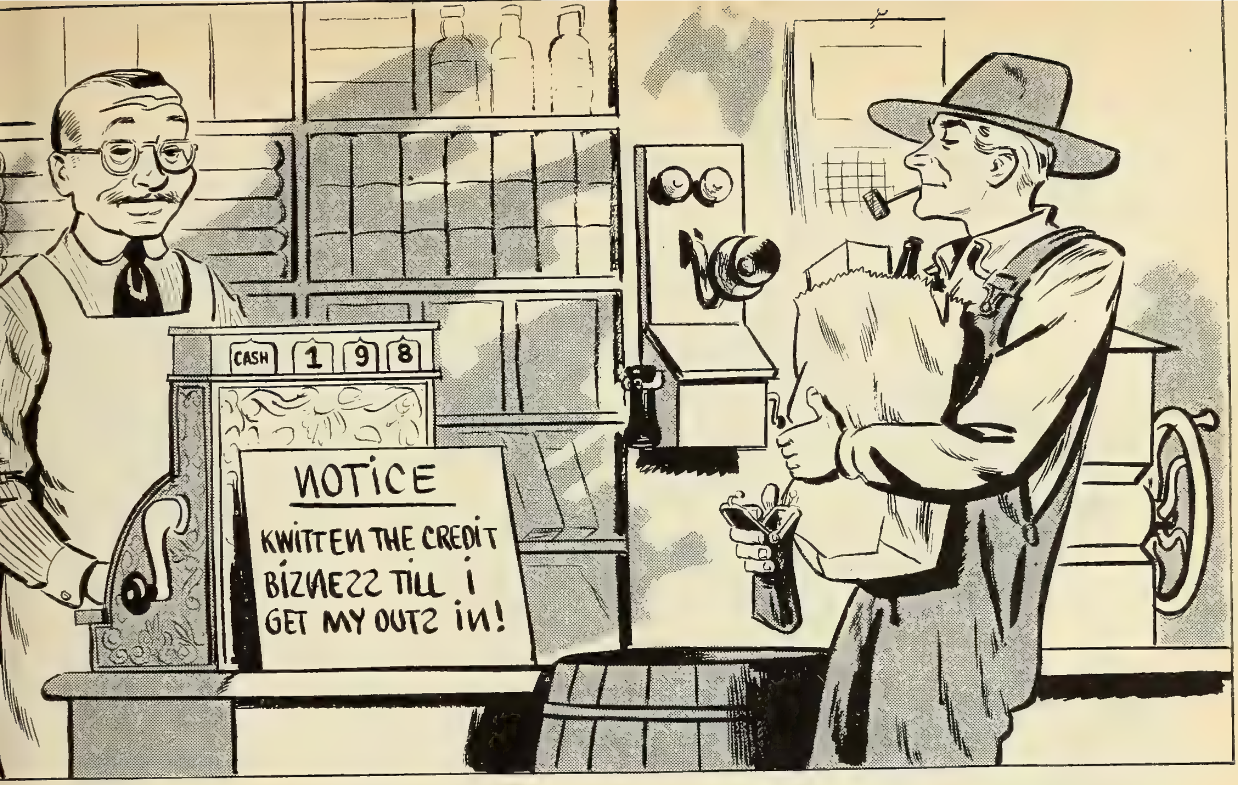
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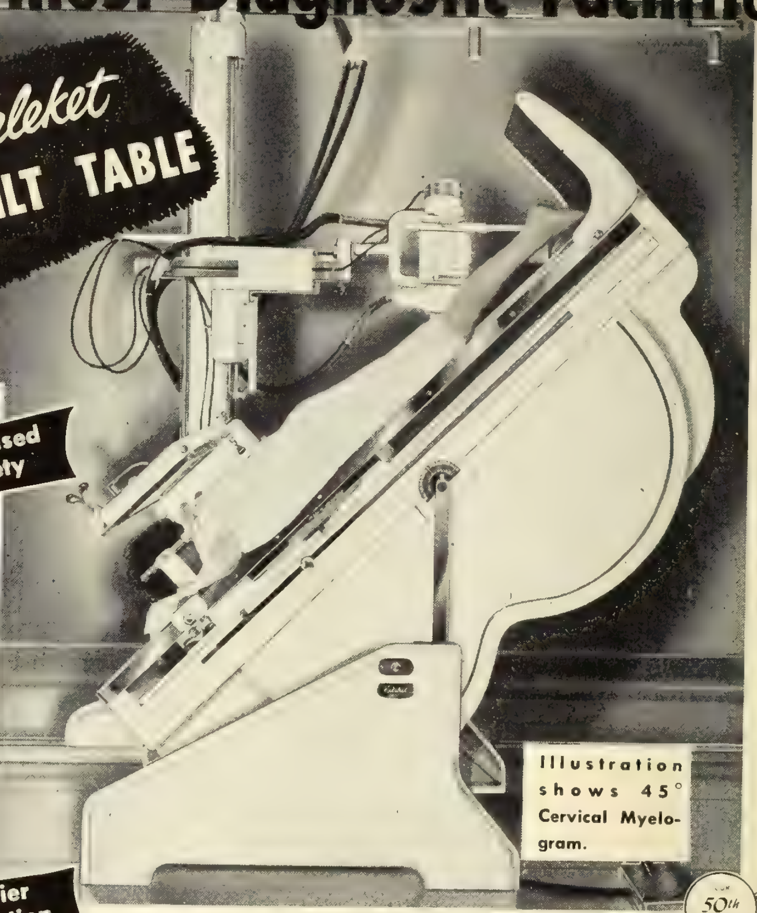

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 33 July, 1950 No. 7

THE EMOTIONAL PROBLEMS OF THE CHRONICALLY ILL

GEORGE SASLOW, M.D.
St. Louis, Missouri

AT the present time (and I say at the present time because things may change in the next ten years about tuberculosis), we must regard tuberculosis as a chronic disease requiring treatment for an unknown number of months or years. It is a chronic disease, the treatment of which usually requires a number of different forms of therapy: treatment at home, involving bed rest and the avoidance of contagion for others; treatment in a sanatorium where there is bed rest and the same care about contagion, and where there are also surgical procedures such as collapse therapy and thoracoplasty; and where there may be used, in either place, antibiotics like streptomycin.

Different kinds of treatment may have to be used from time to time in the course of a patient's tuberculosis treatment. The patient has to be prepared for these changes. It may be that one kind of treatment has not been beneficial, or that it must be continued longer. Perhaps he must shift temporarily to some other more drastic treatment.

All of these changes involve a high degree of co-operation on the part of the patient. To make matters worse there is no quick, easy or sure cure for tuberculosis and out-patients soon get to know that. Furthermore, bed rest (that is, an extremely low level of activity for a long period of time) is still the major reliance of therapy. To make matters still more difficult for the patient with this illness, he soon learns or he witnesses, in other patients, that he may be subject to unpredictable relapses. For him to be successfully treated under these conditions it is most important that the patient have the capacity to sustain co-operation with the physician and other persons who are part of the medical team. In this regard, he has to sustain co-operation with medical personnel for a long period of time in diverse kinds of therapy and with possibly various kinds of discouragement and no certain result. He is thus in the same situation as patients with other chronic, intermittent diseases, such as diabetes. Here, where we have an important therapeutic chemical substance, insulin, exactly the same problems are found. In the cases of persons with structural heart disease, such as rheumatic fever, we have the same problems of ups and downs, of different kinds of treatments, from limitation of work to surgery. People with epilepsy must be followed all their lives. Thus, in the treatment of various chronic, intermittent diseases, there are common general problems.

Apparently it is extremely difficult for people with tuberculosis (as with other diseases) to sustain a co-operative relationship with medical persons or a medical team. This difficulty is highlighted by some recent studies, published in 1948. I refer to the issue of the Public Health Report, November 5, 1948, Tuberculosis Control Issue, Number 33, in which the main article "Irregular Discharge of the Tuberculous" covered the problem of irregular discharge, meaning discharge before the person had received maximal benefit from hospital treatment.

In this article there is the statement that over 50 per cent of tuberculous patients in Veterans Administration sanatoria left before they had

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Tuberculosis Lecture given at a meeting of Third District, Minnesota Nurses Association, November 9, 1949.

Dr. Saslow is Associate Professor of Psychiatry, Washington University School of Medicine, Psychiatric Consultant to the Student Health Service of Washington University, and Director of the Division of Psychosomatic Medicine.

received maximal benefits from hospitalization. More than half the patients in these VA tuberculosis sanatoria failed to receive what they should have from modern medical knowledge. You might think that this might have had something special to do with the way VA sanatoria are operated but study of other hospitals showed it had nothing whatever to do with the way VA hospitals, as such, are operated. A survey was made of this sort of thing in hospitals throughout the country including public and private sanatoria, of various sizes, and in diverse locations. In one such survey made some years ago of a sanatorium in Tennessee, for example, 70 per cent of the hospitalized tuberculous patients left against medical advice, that is, before they received maximum benefits. So the figures run for over a hundred sanatoria throughout the country which have been studied during the past ten or fifteen years, right up to the present time. Taking all the figures together, from about 30 to over 70 per cent of hospitalized tuberculosis patients do not complete their course of treatment. A fair number of these are dead within a year, having in the meantime spread infection to an unknown number of other persons in that year. It must, therefore, be very difficult to sustain the kind of co-operation which I mentioned, and from that point of view, I don't think it is exaggerating to say that tuberculosis had best be regarded not only as a disease of the infected parts of the body (the lungs for example), but also as a disorder involving the entire personality. Unless the person is treated in a certain way, we cannot give him the benefits of our best medical and surgical knowledge.

From this point of view, which will be basic to the rest of what I have to say, I shall discuss certain points in the course of our professional contacts with a tuberculosus patient. If we have a greater sensitiveness to him as a person, we may help him sustain the necessary co-operation with a medical team. There are ways of helping a patient sustain such co-operation. The knowledge and skill to secure this co-operation are not widely enough spread throughout the medical team. We can bring out this kind of knowledge by discussing how to help a tuberculous patient: (1) at the time of diagnosis, when the patient is told he has the disease, (2) at the time when he is to have active therapy, as in a sanatorium, and (3) at the time when he is ready for discharge and ready to resume ordinary life.

Let's take the first point, the time of diagnosis. Consider what happens at this time, which, if we consider the patient as a person, we might turn to his advantage. It is important to remember that his inner ability to stand up under this strain is decreased by his illness.

The patient comes to see a physician for a general examination because he hasn't been feeling quite up to par, his complaints are vague, and his work efficiency has fallen off. Perhaps he tires a little more easily but that is about as much as he knows. Let us suppose next that the examinations, which are necessary, are done, the physician picks out some clues, perhaps a chest x-ray film indicates that tuberculosis must be considered seriously. Then suppose he finds tubercle bacilli in the sputum or in the gastric washings. The x-ray reading indicates tuberculosis without question. The physician is certain of the diagnosis. This is completely unsuspected by the patient up to this point.

Now the physician has to communicate the seriousness of the condition to the patient. And in giving the patient the diagnosis, no matter how he does it, he must make the seriousness of the illness understood. The patient reacts in one of a number of ways to which the physician can pay much or little attention. The patient may show no reaction at all, may look apathetic, just listen and show nothing. It is incredible, I think, for all of us who have seen patients with tuberculosis, to believe that they really feel nothing.

One's guess is that when a patient shows apathy on receiving such serious news, there is something about it that is so painful that he is stunned by the words, just as some persons suffering the bereavement of a close relative may show no outward emotion whatever. The very person that was expected to be most disturbed by the death of a father, mother, a husband or wife, may register no reaction. It is perfectly possible for him to be so startled by serious news as to appear as though nothing had happened. The physician, after he tells the tuberculosis patient of his diagnosis, may go on to explain about treatment. He may talk for 15 or 20 minutes. He may find to his surprise, some days or weeks later, or when some one else talks to the patient, that a quite intelligent patient has remembered nothing whatsoever of what has been said to him.

There are many variations in reaction to emotional shock. One may simply remain stunned and unaware. There may be the reaction of crying, or with men (who aren't supposed to cry in our society except in the presence of their mothers), there may be tears in the eyes. Other reactions include intense fear which the physician usually describes as shock. The physician may pay no attention to these reactions, or absence of reactions, but may keep on explaining what the disease is and what will happen to his patient.

The patient, in his intense anxiety, may assert that the physician is wrong in his diagnosis, may go on telling himself that he can't possibly have the disease, and his thoughts may follow one of various common courses. Some patients may never want to see another physician again and, in consequence, become seriously ill, or report to a hospital too late, or may die. Others may go from doctor to doctor, hoping to find one who will tell them they do not have tuberculosis. If there is any question about the diagnosis, or if the physician does not have time to discuss the findings or make a careful study, these patients will seek assurance from persons who are not physicians, who are willing to differ.

Another kind of reaction that is not so common, for some reason or other, is the sudden outburst of anger on the part of the patient, against the person whom he blames for having infected him—some one in the neighborhood or in the family, perhaps, who is known to have had tuberculosis or is thought to have had the disease

Many other things may take place in the thinking and feeling of patients at the time the diagnosis is communicated to them. Some people may think that having tuberculosis is punishment for personal misbehavior. They reason: "I stole something, I was unfaithful to my wife or my husband, or I acted too arrogantly. This, then, is my punishment." Since some patients regard this news as being a punishment for something and since no one likes to be sentenced to jail, talk about being in a sanatorium for a year to such a person is the equivalent of a jail sentence. Such a person may decide, "before I go to jail I'll have my last fling and have a fine time night after night."

In one such instance, reported by Dr. Jules Coleman of Denver, who has had a very wide experience with tuberculosis patients, the following occurred: a young man who had unilateral minimal tuberculosis received the news of his diagnosis as the equivalent of a jail sentence. He decided to have that last fling. Eight days transpired between the time of the communication of the diagnosis and his admission to the hospital. At the end of this interval, having had a high, wide, handsome time, day and night, he came in with advanced bilateral pulmonary tuberculosis. This is perfectly possible — one's physiological condition can deteriorate thus rapidly, permitting the spread of the tubercle bacilli.

Other persons, when the diagnosis is communicated to them, believe that if they carry out the prescribed treatment, such as going to a sanatorium, their friends will never again want to have anything to do with them. They feel, in short, they will be as rejected by everyone as though they had leprosy. Nobody will want to associate with them, everyone will be afraid of them. This is their obsession. Thus, the communication of the diagnosis to some people means "I've lost all my friends. I'll have to move away."

To other people, the main thought which occurs is "I'll be on my back, helpless, not earning anything for a year or more. I'll be completely dependent." To persons who have always been self-reliant, dependency is the cause of intense emotional distress. They find it difficult to accept the diagnosis chiefly because it involves complete dependency for a fairly long period.

To still other people, the diagnosis of tuberculosis may come at a time when they are in the mid-stream of developing their career. Such people may feel as if everything, life itself, will now be interrupted and that opportunity for advancement may never return. Sometimes, of course, this is true.

Thus, the news of the diagnosis of tuberculosis may have any one of a variety of serious meanings to a patient. The doctor himself may know nothing of these meanings unless he learns them from the patient. The usual custom in the past has been to attempt to get nothing from the patient. The patient's reactions thus remained unknown to the physician.

Some of the things which physicians do in communicating diagnosis are known to be very ineffective. What I say here about doctors applies also to nurses and other members of the medical team. Both doctors and nurses must work together on this job. Doctors are usually the first to communicate the diagnosis. Among the ineffective procedures that doctors use at the time they communicate the serious news are these:

They may minimize the seriousness of the news and talk in a very vague and casual way about it. "Oh, you have a spot on your lung, but you'll be all right." Giving the patient this kind of false reassurance is no kindness whatever. The patient really must be prepared for what is going to happen to his life during the next year or two years. Not telling him what this is, not only leaves him open to a greater disappointment when he finds out what he is really up against, but may make him distrustful, first of all, of his doctor and later on, of any doctor or nurse, in fact of any member on the medical team. Thus, we have poisoned a very important source of security for him at the hospital, as will be discussed later.

Another thing the doctors could do, when indicating diagnosis and discussing what has to be done, is not to be overly optimistic about the duration of treatment for this disease. Very commonly doctors say, when communicating the diagnosis, "you will have to be in a sanatorium or in bed for six months or so, and then you will be all right." Tuberculosis is too unpredictable for that. Six months is almost universally felt to be too short a time for treatment—certainly until we have much better antibiotics than we have now. These patients look forward to recovery at the end of the specified time and the more they feel the disease has messed up their lives, the more anxiously they count on recovery by the exact day the doctor mentioned in his casual statement. When that day passes and they realize they are still ill, they tend to neglect themselves and to violate hospital rules. If at home, they go out and pay no attention to rest, and so on, and tend to have a rapid progression of the disease.

Another thing doctors tend to do is to give the tuberculosis patient a very optimistic portrayal of a year in a hospital, away from home and family. They talk about freedom from responsibilities, about freedom from worry and bills, and they minimize the difficulties of sanatorium life.

It is important to mention that the physician is usually pleased by a patient who accepts news of his diagnosis very readily and with a smile. The doctor thinks: "This is a good fellow, this is a good patient, he takes it with a smile—he'll go right ahead." There are a number of instances on record, some of these also described by Dr. Coleman of Denver, of persons who really have appeared eager to accept the news of the diagnosis. They agree with the doctor while in his presence. They give him no hint of what they are thinking, but they may never see a doctor again, they may never enter a sanatorium. Perhaps they put this smile on to conceal how hurt they are. Their behavior remains unpredictable after they leave his office.

Now what are some of the more effective ways of managing this total situation?

The doctor usually doesn't know what the patient is thinking or feeling. He certainly doesn't usually know what the patient's circumstances are or what this interruption in his life at this particular moment may mean to him. There seems to be no way out of this situation. But there is a kind of help which works in many other unalterable life situations. When a person has a difficulty to surmount, it helps him to define that difficulty by expressing himself. The difficulty he experiences is an emotional disturbance, emotional distress or anxiety (it makes no difference what you call it). He is temporarily disorganized. The best way to help the patient handle a difficult situation when he is emotionally disturbed does not seem to be to minimize the situation for him or to preach to him about what he should do. He seems to be unable to do the thing that is the best for him to do unless something else happens first. That something is that he seems to have to discharge the emotion which is in him. Afterward, he can often face his problem and plan more realistic action.

The person who has been unable to solve a problem when intensely disturbed may be able to solve it when he has discharged the emotion he feels. The job the physician has to do (or, if the physician begins the job, the nurse has to complete it) could be put like this: When announcing the diagnosis, one should wait to see what the patient will do and whether he does nothing, or a lot, or smiles acceptance. It is then up to the physician, after a brief pause, to allow the patient to react spontaneously, in an effort to find out what this news has meant to him. The physician could begin by saying: "What do you think about this"—a simple question, or "what does the disease, tuberculosis, mean to you?" or "what will this do to your life?" or, "who will take care of your family or children (if it is a woman who has children) if you have to go to a hospital?" The doctor must ask these questions and other obviously related questions—he must ask them briefly—and when he asks the question he must give the patient plenty of time to reply either by words or by expressed emotion.

If the patient wishes to cry for five minutes, that's what he should be allowed to do. If the patient wishes to talk and then break down and cry, that's what he must do. The doctor must not interfere with his emotional reaction. The doctor will then not only get some of these emotional disturbances out of the patient by this kind of technique, but after some of these disturbances have been expressed the doctor will usually have learned many things the patient has to face in his treatment. Furthermore, the patient is then more ready to confide other significant attitudes and fears, since that is the usual result of sharing an emotional experience. The two individuals have become closer. A doctor can hardly do a thing like this in less than fifteen minutes of continuous time in privacy with a person. He can't be interrupted by phone calls every few minutes, or people walking into the office—either the nurse or other patients. It requires some understanding of the fact that people do not communicate matters of emotional intensity unless they have privacy. It takes a few minutes for one person to warm up enough to tell another person something as important as what this news does to his life. Physicians need to understand that they have to allow time for the patient to go through this process—maybe only 15 minutes—that they have to allow this time in a setting of privacy where the patient feels he has the complete attention and interest of the doctor.

The physician may decide that he wants to have another session the next day, so he may say, "I'd like to talk with you more about this tomorrow." He doesn't have to make any promises up to that point. He doesn't have to describe anything in detail about what is going to happen concerning the treatment of the disease; just, "I want to talk to you some more tomorrow" is all he has to say, and the patient will come back. Now if this procedure is followed, whether two or three times by the physician, or in the beginning by the physician and then by the nurse, it can be very helpful because the patient feels that more than one person understands him. If this has been done properly something very important has happened. The patient has shared a very important kind of emotion, a very special kind of experience, with at least one other person.

And what is accomplished by this sharing of an important emotion with another person? The two people become tied together. In this case the patient becomes tied to the physician. The patient develops more confidence in his physician because of the sharing of an important experience, just as buddies at war formed life-long friendships not because they had pleasant experiences together necessarily, though that, too, can be true, but because they had escaped death together and talked about it. Once this close relationship is formed, the patient trusts his physician. The patient then has a much greater internal ability to stand discouragement, the long period of inactivity in the sanatorium, and the isolation from home which will be necessary for him to get his best chance to get well. So a strong patient-doctor relationship is established which the patient remembers and benefits from.

The social worker is another person who can contribute to this process of helping the patient sustain his internal stability until he gets well. She can be very helpful if there are children to be provided for or matters of family finances to be attended to while the sick person is away. This kind of assistance should be managed in the same way as above described, not only with the patient but also with the involved members of the family. Persons involved in the emotional disturbance of a patient can be treated exactly as the patient, by not minimizing the true situation, by not giving false reassurance, by not saying "buck up" or "be a brave person," but by finding out what it all really means to them and by allowing their emotional reactions free expression. Then these people are ready to discuss what to do if anything can be done. What can be done after this emotional discharge has taken place? Much more than we usually give people credit for.

The next phase in the course of the patient's adjustment to treatment follows admission to a tuberculosis sanatorium. Several factors may influence him to leave the hospital. With the proper understanding on the part of the medical team, he may remain in the hospital. Important to remember about the hospital situation is the fact that the patient is isolated from all the people that he loves and from all his friends. On account of this isolation—the fact that he is cut off from persons on whom he has relied for affection, understanding, friendship and so on — several things may happen. The patient may become extraordinary sensitive to anyone who shows special interest in him in the hospital. If the doctor takes interest in a patient cut off from any other affectional support, the doctor immediately becomes extremely important to the patient. The nurse, similarly, becomes very important, the occupational therapist, the recreational worker, the librarian, any one of these can become equally important to the person whose affectional life has become practically nothing in the sanatorium while he had a normal social life and companionship outside. Thus a doctor who is very pleasant to the patient one day and pretty cold to him the next (because he himself has been up late the night before or is bothered about his own problems) has an overpowering effect on a patient who has become extraordinarily dependent upon that doctor's attitudes. The same applies to other members of the medical team, from nurses to attendants. If they have problems in their own personal lives, which they bring to their work, so that their behavior towards these patients, to whom they mean so much, goes up and down in an unpredictable way, the patient's emotional reaction also goes up and down in an unpredictable way, because he feels that he has been alternately indulged and deserted. Such unpredictable desertion may be the time when the pateint leaves the hospital.

The hospital personnel is extraordinarily important in sustaining the morale of the person isolated from friends. Often hospital personnel are completely unaware of this. They may not be doing a good professional job. They may not be especially interested in this patient. But, because he has nobody else, they are now the most important figures in the patient's world. What they do is of extreme importance, and they must learn to behave in a sustained friendly way toward such patients, as is necessary in a hospital situation. It doesn't do for them to behave as Betty MacDonald described in her book, "The Plague and I," to come in one day to find a patient disagreeable and say, "Well, if you don't like it here, you can go home any time; there are thousands who would be glad of the chance to have your bed." That will solve nothing, the patient may very well go home, and some other patient will take that bed, and behave similarly. Nothing is gained by that.

One thing that one can do in the hospital to make the patient's stay more productive for him is to realize that it is difficult for him to be separated from his usual personal supports. How does one learn of these difficulties? Beginning at the time of diagnosis, an attempt should be made to find out from the patient exactly how he feels about being away from his family for the first time—or for so long—from friends and from his work satisfactions. In other words, let the patient express how he feels about his isolation. Then discuss with him the pros and cons of "should I go back or should I stay here?" Let him discuss this freely and he will be helped to come to the conclusion: "if I want to live, I'd better stay here under treatment." But he may have to go through this entire process.

Another major point of importance during the hospital stay has to do with the enforced inactivity of bed rest. Most of us have no idea how hard it is to reduce our activities to the level the doctors characterize as absolute bed rest. Most of us have no conception whatever of what bed rest involves. Doctors and nurses themselves are extraordinarily poor patients in this respect. This is well known in any hospital where doctors have been patients.

What happens when a patient who is really able to be active is told to be completely inactive? He often becomes extremely restless and hyperkinetic. As they say in the army, he does "ten miles a day in his sack." What does the doctor gain by this? Nothing. If you will measure such a patient's cardiac activity, respiratory activity, and other kinds of nervous system activity, you will find that he is probably no less active than if you permitted him certain standardized kinds of co-ordinated muscular activity which he could easily do.

It is very common that when a patient's activity is reduced below a level he can stand easily, he becomes preoccupied with old thoughts, old fears, anxieties over things long past. He will recall evil things that he did in the past which have never bothered him before. Such thoughts may be of events of five, ten, or fifteen years ago. Suddenly now they come to the surface and he is constantly obsessed by them. Such a patient often becomes extremely anxious about dying, fearing that his disease is about to kill him. He may have exaggerated fears in relation to the demonstrable stage of his tuberculosis. Such exaggerated fears may occur in any kind of disease, just by making a man inactive. Inactive patients tend to become very hypochondriacal, noting every kind of sensation in their bodies and wondering if these symptoms indicate they are getting worse. They become increasingly skilled at observing their sensations, since by the doctor's orders, they have nothing else to do. They ask for remedies for these various sensations to such an extent that the doctors characterize them as demanding, whining, complaining. All this talk with doctors and nurses about symptoms, real or imagined, contradicts the purpose of bed rest, and they are being just about as active, it seems to me, as though they were permitted some activity. The patient soon becomes prejudiced against the doctor because of his attitude toward these reported symptoms. It is important that the doctors recognize that while these symptoms are not bona-fide in the sense that they can be treated with medicine, they are significant. Because the doctor is in a position not to accede to the demands of the patient, the patient gets mad at the doctor. He talks against the doctor—to him or to other people about him. He usually talks a lot and in a loud voice and again he isn't getting bed rest.

In tuberculosis hospitals, when the routine x-ray period comes around, say every month, some of the patients who take inactivity hard, tend to have a fever the night before x-rays, "x-ray fever." Or, they may develop sudden chest pain. Their temperatures actually may rise a little. There is known to be increased instability of the temperature regulating mechanism when people are upset.

Again, the attempts to maintain bed rest may be interfered with by bad news from home. A person who is doing as well as might be expected suddenly becomes hyperkinetic on receiving a letter about some family problem.

The sex drive is also a problem for patients who are kept inactive. The majority of tuberculosis patients, until recently, when the age range has been going up, have been in the younger age group. They have not worked out their sexual life in marriage. They are young and vigorous. They find themselves deprived of all muscular activity, social life, emotional life, and sexual life, and they tend to experience difficulties with sexual fantasy, masturbation and the like, again contradicting the purpose of bed rest.

Thus, it seems to me, that the whole problem of bed rest needs more reasonable handling. One can determine to what level a patient's inactivity can be reduced. Surprising discoveries can be made by asking simple questions. There are patients who will report that as far back as anybody has ever told them about, from the earliest days of childhood, they never sat still. You can't expect such a patient to lie down for a year and not move. There are patients who never had a nap at any age in their lives for more than a couple of minutes, and so on. It is, therefore, necessary to find out what the capacity for inactivity is for the individual patient.

It might be more effective to permit certain kinds of muscular activity, such as sitting up in bed for meals, getting out of bed into a chair regularly three times a day, or bathroom privileges once or twice a day. The patient could thus be permitted to discharge a considerable amount of muscular energy, which discharge might enable him to be inactive for most of the day. Occupational therapy in bed is also helpful. Combinations of such measures would actually achieve the kind of results doctors aim at, and believe they are getting, but which often are not really being obtained.

The patient needs special help and understanding when there is necessity for surgical treatment. He must be told that the relatively simple measures which it had been hoped would help him are inadequate and that something more drastic must be done. Again the physicians behave somewhat as they usually do when they communicate the diagnosis. They tend to promise magical relief as a result of treatment such as thoracoplasty and collapse therapy. They tend to pay no attention to the patient's concern about the results of some of these operations. They have no idea what the patient understands when they announce that he needs an operation. They don't bother to find out what the term "a collapsed lung" means to a patient. Some patients apparently believe that the doctor will literally crush their lung, that they will lose one lung completely.

In general, the surgeon should follow the same procedure previously outlined for the physician in communicating the diagnosis. When he announces the news, he should allow for a type of emotional blackout and allow time for the overt expression of whatever reaction is occurring. He can then discuss the possible alternatives to the operation. This is a type of psychological preparation for operation which every surgeon ought to know how to do in three or four minutes. Because the patient knows the surgeon is going to have his life in his hands, he is in a strategic position to do this job well—a position far superior to that of the person whom the surgeon regards as better qualified, the psychiatrist. The psychiatrist does not have this strategic relationship with the patient. The psychiatrist, atempting to do this job, after the person already has become very upset, needs as much as ten to twenty minutes more time if the interview is to be successful. Sometimes he is never successful. The patient may leave the hospital through his fear of the operation.

Now, when the time to discharge a patient comes, one of the problems to consider is that the patient may have adjusted too well to inactivity. He may have been impressed with the dangers of activity. He has become aware of the tiniest unusual sensation, when he moves around in bed, and feels guilty because he is violating bed rest rules. So, when we say, bed rest is over, you can get up and move around, he may experience a return of these sensations, and is constantly fearful of a relapse. It is not uncommon, here and there, to meet patients who have been discharged from the sanatorium with arrested tuberculosis and who, fifteen or twenty years later, are living as though they still had active tuberculosis. They are unable to make a move, without experiencing various disagreeable sensations, rapid heart, coughing, sweating and so on, which they mistakenly attribute to tuberculosis. These are properly to be attributed to poor physical condition due to prolonged inactivity. Such people remain invalids for the rest of their lives. We have conditioned them too well to inactivity. There is a special hazard at this time as they go from inactivity, which was necessary for their treatment, to resume normal life. When, under supervision, we increase their activity level up to the point where they can stand these unusual sensations without fear, people who have been invalids for some time can be rehabilitated. Physical therapists can do this alone if the patient understands his own reactions and wants to become stronger.

There is the question of what the patient shall do when he leaves the hospital—he may have to look about for a different kind of occupation. It is necessary to understand how important this may be to a patient. One of the problems is how to prepare a person for an entirely different occupation under physical limitations relatively new to him. Many of these patients need, in addition to help on becoming more active, special vocational training, vocational hardening for their old occupations, or vocational retraining and hardening until they reach their maximum work capacity. Then they are better prepared to leave the hospital. There are some patients who will always do less than the work they could do, fearful that if they do too much they will become ill again. There are patients who will overdo at this stage, in an effort to prove to everybody that they are going to be successful at the new job and as a well person. There are patients who are so upset as they face the problems of active, normal life, that they experience many symptoms such as fatigue, slight temperature rise, and sweating. Often it is obvious that these symptoms have nothing to do with tuberculosis. Sometimes it is not so obvious because the body has an extraordinary capacity to reactivate symptoms of a sickness under new stresses. So it is not always clear what these symptoms are and often such patients are suspected of actual relapse.

Many of these people are actually afraid to return to normal life after being in the hospital for a while. A University student realizes he is a year or two behind his previous classmates. It may be unpleasant to return. A man in business, realizing he has lost a year or two, may fear that he may not be able to compete with others who had no such setback. This may cause enough emotional disturbance so that he doesn't co-operate in the process of rehabilitation. Again, the patient's difficulties should not be minimized. They can't be just labeled "oh, that's just in your head." Although these reactions are psychological, they are none the less real and must be considered carefully in the process of aiding the patient to become a well and healthy person again. Again, the method is the same: help the patient to express his difficulty fully. Encourage him to reveal exactly how he feels about it. Then, and not until then, you can discuss effectively how to face the real issues and help give him courage to go ahead.

One vital point relating to discharge has to do with relapse after discharge. When a patient who has done pretty well under treatment returns to the sanatorium after discharge as a relapsed case, it is always worth while to find out what happened in his life during the interval between discharge and relapse. There may have been some special difficulty when the person tried to work out his life outside the hospital. That difficulty may have been too great for him to master and he has responded to that difficulty by a loss of appetite, insomnia, taking too much alcohol, staying away from home or quarrels with his family. Any one of a number of these things, when carried on, for a number of weeks or months may have the end result of depleting him physiologically and then the relapse may occur. So it is always well to investigate how a person who has a relapse has lived following his discharge with arrested tuberculosis.

There is one more variation of this general problem of treating the sanatorium patient which involves special consideration. I refer to the person who has never thought he had tuberculosis, who may have no symptoms at all but a test shows something suspicious. The diagnosis is uncertain but points to a possible tuberculous infiltrate. How long should a doctor keep on having experts do various kinds of tests before he says forget about it, or sends the patient to the sanatorium? What happens to the patient without a definite diagnosis of tuberculosis who goes to a sanatorium, stays there a year, and then is told he never had the disease? The impact of such news after undergoing treatment may be disastrous.

The problems which I have mentioned, which seem so important for sustaining the co-operation of the tuberculous patient with his medical advisors, have aroused only the occasional interest of medical personnel. By and large, there has not been anything like the interest in this aspect of chronic disease, including tuberculosis, which the subject and the number of relapses warrant. When proper attention is given to the emotional problems of the chronically ill, astounding results are observed. We already know from a few experiences that when this sort of attention is given to the patient as a person, discharges against medical advice fall markedly below their previous rate. In some VA hospitals where for two years, they have tried to treat patients in this way by increasing their social work staff, a 20 or 25 per cent decrease was shown in the percentage of patients who walk out of the hospital without receiving maximum benefit.

In a report to which I have previously referred —the November 5, 1948, U. S. Public Health Reports, Tuberculosis Control Issue No. 33, we have all the data to support us if we attempt to carry out a program along these lines.

How to carry out such a program in a sanatorium is the next thing to discuss. First of all, there won't be enough psychiatrists in our life time to do this job. They can't be trained that fast. Many psychiatrists aren't interested in work of this kind. But I am not certain that we need psychiatrists for most of this job. Actually, many other personnel of the medical team have more influential contact with the patient than have the doctors, so this is a problem for every member of the medical team responsible for the care of a person with chronic illness, such as tuberculosis. Every person on such a team, from the attendants at the hospital up, should understand some of these basic principles about how to help people who must face and are facing difficult situations. And if the team really does understand these problems of patients, and acts as a team, they can do much toward their solution. Perhaps the best use of a psychiatrist is as a member of this medical team and not in an individual relationship with the patient—that is a real possibility. How could we better use the help of one individual with the kind of psychiatric skill which I have been describing than by having him impart some of his "know how" to those handling patients daily?

How can we get these skills more widely distributed? Various methods have been discussed. One way which seems feasible—the VA way, is to put more social workers on the hospital staff. We can't do that in every hospital; there just aren't enough social workers. Another way which seems feasible would be to extend as far as possible the knowledge of the especially interested psychiatrists. They are the only ones the doctors would listen to, if they would listen to anybody. They won't listen to a social worker or let a social worker run a medical staff conference in a tuberculosis sanatorium, but they might permit a psychiatrist to attend conferences as a consultant.

If we could then have one competent psychiatrist in an area where this kind of program is desired, the best way to use whatever time he had available, I think, would be to have him come to regular conferences of the staff weekly. The doctors, social workers, occupational therapists, recreational workers and school rehabilitation and hospital counselors and attendants could then study a single patient in detail and much could be accomplished. The psychiatrist could rapidly raise the level of understanding between staff and patient. The result might well be a change in the whole atmosphere of the hospital. We have seen this happen a number of times with student nurses. We have seen whole wards where there had been conflict between patients and nurses (especially when the nurses were beginners) become quite harmonious places, with patients attending to their proper routines and getting well. We have seen the nurses much happier and understanding their patients much better. I am sure this could be done elsewhere just as well as in a general hospital.

The VA recommendation as to how to solve this kind of problem, based on their experience, is very simple: a large increase in the number of social workers and psychiatrists for all hospitals. It is very easy to suggest this, but they can't do it any more easily than we can. I think we will have to be more ingenious. We will have to find other ways of raising the general level of skills of the medical team in dealing with the patient. We may even learn to make more skillful use of group conferences of patients in various stages of the disease and hospitalization.

Finally, I would like to say there is nothing that I have said that is limited to tuberculosis. Any chronic illness, even a personality illness like a psychoneurosis or a psychosis that goes on for years, improves if handled by exactly this same method—sustained co-operation with the person with whom one has a special kind of relationship based upon sharing important experiences and upon a belief in his competence. This seems to be the chief weapon. More understanding and practice of this particular technique will solve many problems of the chronically ill.

The use of this technique will be just as necessary even in the years to come when tuberculosis sanatoria may no longer be needed. Some of the experts in the field of tuberculosis believe that if streptomycin is reasonably successful as an antibiotic in treating tuberculosis, improved antibiotics will be discovered and that within ten years or so it is not impossible that tuberculosis will be treated on an ambulant basis. The tubercle bacillus, however, is so tough chemically that it is unlikely that treatment can be shortened, so again we will have the problem of long cooperation with our ambulant patients. This could be simpler than the hospital situation, of course, but again long co-operation—the ups and downs of treatment—the different kinds of treatment that may be necessary if the antibiotic alone doesn't work. Again we have the fundamental importance of building up the kind of relationship between the patient and doctor which makes sustained co-operation of the patient easy and natural instead of handicappingly difficult.

Summary

For the chronically ill person to utilize the best knowledge and skill, he needs to be able to sustain co-operation with medical personnel, often under discouraging conditions. Principles found effective in psychotherapeutic medicine can be used to help him achieve this capacity for co-operation to a satisfactory degree.

TYPHOID FROM ABROAD

During the first five months of 1950, only five cases of typhoid and paratyphoid fevers were reported to the Minnesota Department of Health. The same number of cases had been reported at the same time last year. However, the total number of cases in the state in 1949 was twenty-one, with one death. Some of these cases were brought into Minnesota by visitors from foreign countries or by returning vacationers who had traveled abroad, says Dr. C. B. Nelson, director of the Division of Epidemiology, Minnesota Department of Health. In 1948, we had twenty-eight cases of typhoid and paratyphoid fevers, with four deaths. This was a rather high percentage of deaths, which usually occur in about one out of ten cases.

With the vacation season now in full swing, Dr. Nelson advises inoculations for all persons going to areas where typhoid fever is prevalent or sanitation is poor. Several cases previously reported here have been brought in from Mexico and Central America. France has also been a source. A caravan of college students and faculty people from Saint Paul went on a tour of Mexico in the summer of 1947, and three of them later came down with typhoid fever.

The health department also urges travelers going abroad to obtain vaccination against smallpox and immunization against any other diseases they may encounter for which preventive measures are available.—*Minnesota Health,* June, 1950.

HEMANGIOPERICYTOMA

An Unusual Extrarectal Tumor

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EXTRARECTAL tumors occur relatively infrequently. Yet, if one were to judge the incidence of these tumors by the number of cases reported and articles that are published in the literature relative to thier occurrence, a false impression would surely be gained. Of 2,100 operative procedures performed on the anus, rectum, and adjacent structure (excluding the colon proper), in the department of proctology at Temple University Hospital during the three-year period from January 1, 1947 to January 1, 1950, only three of these procedures were for the extirpation of primary extrarectal neoplasms.

Tumors which originate in or occur anterior to the sacrum constitute the most frequently reported extrarectal lesions. Here dermoids, teratomas, and chordomas lead other neoplastic lesions in incidence. The occurrence of ependymomas, neurofibromas, fibrosarcomas, giant cell tumors, and Ewings tumors have been reported.[1,3,5]

Neoplastic lesions may occur lateral to the rectum in the ischioanal fossae. These lesions are even more uncommon than those that occur in the retrorectal area. Chavelet[2] in 1908, was able to collect only eleven reports of neoplasms in this location. Sheddon[6] in 1934, reported three cases of sarcoma in the ischioanal region; however, from the descriptions given the specific types could not be ascertained. Jackman[4] in 1940, reported four neoplasms in this area from the Mayo Clinic files. They were a "lipomyxoma," a lipoma, fibroma, and a dermoid cyst.

Tumors may have their origins lateral to the rectum in the supralevator or pelvirectal spaces. However, this is probably the least common site of all extrarectal tumors. Fibromas, neurofibromas, neurilemomas, angiomas, and their malignant counterparts are the usual types of tumors found within this area.

It is the purpose of this paper to report the occurrence of a tumor having the cytologic features of a "hemangiopericytoma" in the pelvirectal space. Until this time no other tumor of this histologic description has been reported to have occurred in this location. According to Stout,[7,8,9,10] who, with Murray in 1942, first called attention to this lesion, approximately thirty-five "hemangiopericytomas" have been recorded to date in the literature. Tumors fitting the description of "hemangiopericytoma" may behave in either a benign or malignant fashion. Stout cited definite proof of malignancy with metastasis in six of the thirty-five lesions that he reviewed, while seven other tumors of the thirty-five showed aggressive growth without metastasis. Many of the other cases were followed inadequately after operation. In most instances it was not possible to distinguish between the benign and malignant tumors histologically.

It is only fair to state that much disagreement exists about the exact nature of these neoplasms. Whether they actually constitute a distinct entity remains to be ascertained. Diagnosis rests entirely on the histological finding of well formed capillaries surrounded by a varying number of ovoid or spindled tumor cells. Silver staining to accentuate the connective tissue sheaths of the capillaries is said to be of aid in diagnosis, but any highly vascular undifferentiated mesenchymal tumor might show similar feature.

Case Report

The patient (M.B.) is a white man, fifty-six years old, a barber by trade, who presented himself to his family physician in August 1949, because of a mild exacerbation of bronchial asthma. The patient requested a complete physical check up; so the family physician, being an astute practitioner, complied with the patient's request and incidentally discovered an extrarectal tumor mass. The patient was admitted to the proctologic service of Temple University Hospital on October 12, 1949.

Further questioning disclosed a history of normal bowel habits, with no history of bleeding or pain. He had had no previous rectal or extrarectal complaints, treatment, or surgical procedures. In fact there were no symptoms whatsoever referable to the tumor mass. His past history was not significant except for mild bronchial asthma for eleven years prior to this admission.

Physical examination revealed a well developed, mod-

From the Department of Proctology and the Department of Pathology, Temple University Hospital Medical School, Philadelphia, Pennsylvania.

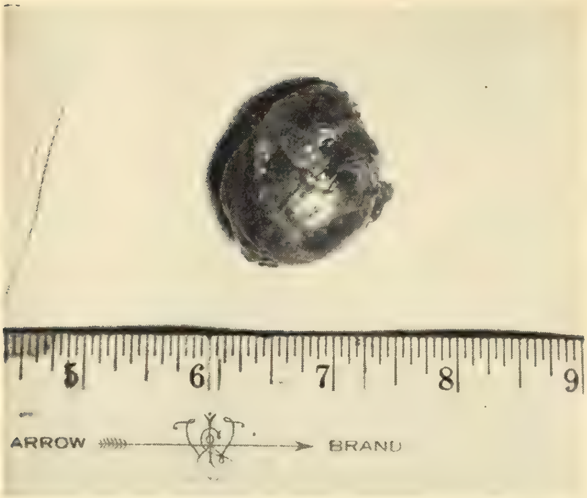

Fig. 1. Gross appearance of tumor.

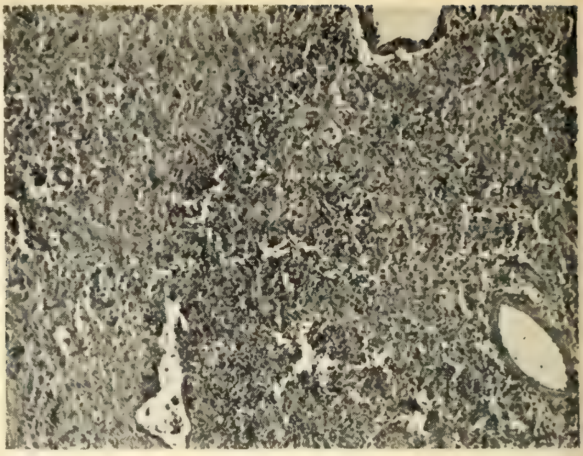

Fig. 2. Microscopic appearance of tumor X85 H. & E. stain.

erately obese white male, 5 feet 4 inchs tall, weighing 155 pounds. He was ambulatory and appeared to be in good health. The chest was clear to ausculation. Physical examination otherwise presented essentially normal findings, except for the rectum. Here, a digital examination revealed the presence of a firm, discrete, golfball sized mass lateral to the rectum in the left pelvirectal space. The lower margin of this mass was located eight centimeters from the anal verge. The mass was not mobile, and pressure did not cause any unusual sensation of pain. The mucous membrane over the lesion was freely movable. Proctoscopic examination revealed slight bulging of the rectal wall in the region of the palpated mass. No intrinsic pathology was noted in the rectum and sigmoid colon to 25 centimeters on sigmoidoscopic examination.

Laboratory Findings:—Hemoglobin—15.3 gms; red blood count—5,300,000 cmm.; white blood count—8,500 cmm.; differential—within normal limits; urinalysis—normal; blood urea nitrogen—11 mgm/100 ml; serum chlorides—343 mgm/100 ml; total serum protein—5.3 gms/100 ml; prothrombin concentration—100 per cent of normal.

X-Ray Findings.—Films of the lower abdomen and pelvis showed no abnormalities. Chest roentgenogram showed mild emphysema, but no other abnormality was noted. A double contrast barium enema revealed no evidence of any abnormality anywhere along the course of the colon. However, the rectum did not seem to possess its usual capaciousness. The rectal ampulla did not appear as wide and as ballooned out as is normally seen, but no discrete filling defects were observed.

Operative Procedure.—A suspension of sulfathaladine was administered orally for seven days and a solution of streptomycin for 48 hours preoperatively. On October 19, 1949, the left pelvirectal space was explored. Under spinal anesthetic of pontocaine (6 mgm.), dextrose (100 mgm.), and neosynephrine (2 mgm.), the patient was placed in jackknife position and the left ischiorectal fossa was entered via a 10 centimeter curvilinear incision midway between the anal canal and the left ischial tuberosity. The levator ani muscle was spread by a long hemostat and retracted to expose the left pelvirectal space. Here a firm, yet somewhat cystic mass, approximately the size of a golfball, was palpated. This mass was situated midway between the rectum and the left sacroiliac joint. It was well encapsulated, but rather firmly fixed in place by fibrous and areolar tissue. The lesion was extirpated by combined sharp and blunt dissection. The wound was then packed lightly with iodoform gauze and left open. The postoperative course was uneventful and the wound was completely healed in two months.

Pathologic findings.—

Gross Description—The specimen is a fairly well encapsulated tumor mass approximately 4 centimeters in diameter. It is moderately firm. Cut surfaces present occasional minute cystic areas, and a hemorrhagic appearance.

Microscopic Description—The tissue is extremely cellular and composed of numerous oval and spindled cells whose nuclei are relatively uniform in appearance. The cells have a paucity of pink staining cytoplasm. These tumor cells appear to surround numerous tiny capillary channels. In some areas dilated vascular channels predominate. Here and there are pigment-laden macrophages. Silver stain reveals the tumor cells to be outside of the sheaths of the capillaries. Trichrome staining was not significant.

Comment

The slides on our specimen were sent by our pathologist (Dr. Peale) to Dr. A. Purdy Stout of Columbia University who is Professor of Pathology. In his letter of May 15 he states, "the silver impregnation slide

(Continued from Page 693)

CLINICAL OBSERVATIONS OF EXPERIMENTS OF NATURE

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THE practicing physician, although denied the role of the scientist in following research, may, if sufficiently curious, participate vicariously in the experimental method. Every physician has the opportunity to observe those experiments of Nature that are set up by the influence of disease of one system or organ upon another. Sir William Osler[13] once said "As clinical observers we study the experiments which Nature makes upon our fellow creatures."

The interpretation of the physiopathologic train of events set in motion by such experiments of Nature challenges the ingenuity of the clinical observer. Because many of these sequences cannot be duplicated in the animal laboratory, the physician should be alert to the unique opportunity for study of factors which may not only give relief to the patient but which may give leads to the investigator in the laboratory sciences who is studying the nature of disease and searching for etiologic and therapeutic agents. Witness the years of careful clinical study by Hench[10] of rheumatoid arthritis and his emphasis on its remission during jaundice and pregnancy. This emphasis gave leads to Kendall,[10] the biochemist, in producing cortisone and other compounds which have broadened our concepts of disease and its treatment even before the mechanism of action of such compounds upon the collagen and other diseases has been clarified.

Furthermore, clinical analysis must precede the use of laboratory procedures if the laboratories are to be kept from creaking under their overload. Any analysis of cases reported is made from clinical data personally observed. The cases reported concern chiefly certain diseases of the thyroid gland, the blood and kidneys as related to the circulation, also to pulmonary infiltrations related to hypersensitivity.

Of particular interest to the internist and surgeon has been the relation of diseases of the thyroid to disturbances of the circulation. It may be stated that the opportunities for early clinical observation and treatment of thyrocardiac disease have tended to keep that disease a clinical rather than a pathological entity. The thyroid has lent itself to clinical study because of its accessibility to physical examination, to surgical extirpation and because apparently quantitative disturbances of its function produce not only well-defined clinical syndromes but also measurable metabolic variations. Parry,[8] in the first reported case of hyperthyroidism observed in 1786, some fifty years before Graves and Basedow, drew attention to the relation between the thyroid and heart; his patient had cardiac insufficiency and probably auricular fibrillation and angina pectoris.

Griswald and Keating[9] in a recent study of 810 cases of hyperthyroidism found that 12.5 per cent had thyrocardiac disease. Of those with thyrocardiac disease, 52 per cent had coexisting cardiovascular disease. Toxic nodular and hyperplastic glands had about equal dispersion in the group of thyrocardiacs. Personal experience indicates that nodular goiter of very moderate toxicity is more likely to be overlooked and to become a provocation of thyrocardiac disease. No characteristic pathologic change in the myocardium may be said to occur. Clawson[5] found only eleven thyroid deaths, one with myxedema, in the 9,934 cardiac cases which comprised 19.9 per cent of 50,730 autopsies from the Department of Pathology, University of Minnesota. Of interest is the finding of Dearing[6] and co-workers that extensive degenerative changes occurred in the myocardium of hyperthyroid animals which received toxic doses of digitalis.

Ablation of the normal thyroid to alleviate coronary insufficiency was reported in 1933 by Blumgart[3] and co-workers and performed by surgeons in this community. While having a rational physiologic basis of reducing cardiac work, the operation has fallen into desuetude to the best of the writer's knowledge, probably because it accomplished too little for too much surgery.

The place of the thyroid in the internal milieu influencing all tissues of the body is especially important as its behavior is related to the circulation and the nervous system. From the physiologic standpoint it is commonly believed that the extra burden due to acceleration of the circula-

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President's address read in part before the Minnesota Pathological Society, at its meeting of April 18, 1950.

tion of blood and increased cardiac output for oxygen transport leads to cardiac insufficiency particularly in the presence of associated organic heart disease. A conflicting opinion has been expressed by Rasmussen[16] who, on the basis of careful animal experimentation, believes that the chief deleterious effect of increased thyroid hormone is not the creation of cardiac overwork, but is the causation of a variation in cardiac rhythm, that is, a functional heart disease, the essential features of which are paroxysms of tachycardia and auricular fibrillation, which leads to failure. This observer believes that the power of evoking paroxysms of sinus tachycardia is a peculiar and characteristic property of the thyroid hormone. Clinical experience also emphasizes the baneful influence of arrhythmia, particularly auricular fibrillation, upon the circulation. In cases of hyperthyroidism with decompensation, sustained auricular fibrillation was frequently present. The slow heart of an animal deficient in thyroid hormone or the rapid heart of the hyperthyroid individual has also been said to be due to a series of metabolic events some of which may be under hypothalamic regulation. Extrasystolic arrhythmia has also been associated with the stimulation of the posterior hypothalamus. To digress, in hibernation, which simulates an exaggerated state of myxedema, the marmot, studied by Benedict,[2] had a heart rate of 4 to 6 per minute; respiration varied from 1 in five minutes to 1 per minute. Arrhythmia of the heart during hibernation was noted which disappeared when the minimal normal rate of about 80 beats per minute was restored out of hibernation.

In cases of hyperthyroidism personally observed, particularly those in the fifth decade and beyond, auricular fibrillation or flutter has frequently supervened at some time, usually paroxysmally and when of short duration tended to disappear after thyroidectomy. Below forty years of age, decompensation has been infrequent. It is suggested that degenerative diseases are factors which indeed often determine the effects of the circulatory overwork factor of hyperthyroidism and also the pathologic anatomy of the heart. The frequency with which cardiac compensation has been maintained for years after thyroidectomy in thyrocardiac disease is noteworthy and speaks for early functional disturbance rather than for myocardial damage at that stage.

For illustration, Mrs. C., aged eighty, was in cardiac decompensation of brief duration with auricular fibrillation associated with hypertensive cardiac disease. Twenty-four years previously at the age of fifty-six, cardiac decompensation had occurred in association with exophthalmic goiter. Following thyroidectomy and recession of the hypermetabolism, cardiac compensation was restored and maintained through the years until the present episode of failure following an upper respiratory infection.

Following thyroidectomy in cases observed over a twenty-year period or longer, some of the individuals with the best health records have been those in whom the surgically induced hypometabolism has required replacement therapy with thyroid extract to maintain normal energy levels and basal metabolism. Miss I. M., aged sixty-one, observed for twenty-three years following thyroidectomy, has been well maintained on replacement therapy with grains ii to iii of thyroid extract daily and has had normal circulation. Incidentally, the removal of hyperfunctioning adenomatous goiter when an interloper in, or associated with, essential hypertension, has not materially influenced the course of the latter. Not referred to in this connection is the slight systolic hypertension and increased pulse pressure noted not infrequently in hyperthyroidism.

In contrast to the usual responsiveness to thyroidectomy is the experience of the nineteen-year-old girl with recurrent hyperthyroidism and severe exophthalmos, whose three operative scars attest to the inadequacy of that procedure. Radio-active iodine, given under careful direction elsewhere, was likewise ineffective. Reports of successful therapy with radio-active iodine in a considerable number of cases of diffuse hyperthyroidism suggest that such treatment may be the one of choice. The influence first of hyperthyroidism before thyroidectomy and later of post-operative hypothyroidism in precipitating decompensation has been observed and reported.[14]

Acute renal insufficiency related to disease of other systems was strikingly illustrated in the prechemotherapeutic era by the case of L. W., a young woman, who, working on research with a virulent staphylococcus culture known to be a high producer of exotoxin, became accidentally infected following a skin scratch and had rapidly developing lymphangitis, accelerated shock rection, extreme hypotension, and anoxia. Oliguria, anuria, and death occurred within hours. The hypoxia on the basis of overwhelming toxemia and resultant acute renal failure appeared to be the mechanism of death.

Mrs. J. N. appeared at the hospital with uremia and moderate azotemia and right pleural effusion. The blood showed increased serum proteins, reversal of albumin-globulin ratio, high sedimentation rate and rouleaux formation. The findings suggested consideration of multiple myeloma. This diagnosis was established by the finding of myeloma cells in the sternal biopsy material by the pathologist. Recovery ensued from the uremia and there was restoration of normal renal function although two years later death occurred with anemia and circulatory failure as prominent features. Uremia was the initial manifestation of disease. Bell[1] has stated in his text that renal insufficiency is frequently observed in advanced stages of multiple myeloma and that death may result from uremia. What factor was accountable for reversal of the uremia, which was the initial manifestation of the disease, remains unknown.

The following sequence of disease occurred in the case of J. H., a male aged thirty-six, married, who first appeared with erythema nodosum which occurred ten days after an attack of acute tonsillitis, and is deemed worthy of notation. About one year later diabetes mellitus developed and was recognized after a six weeks' period of weight loss. Appropriate insulin therapy was given. Approximately one year later myxedema with expressionless facies and skin changes developed (BMR minus 22 per cent) and responded to thyroid replacement therapy within three months. During the period of myxedema, clinical evidence of diabetes disappeared except for transient glycosuria during an upper respiratory infection. Seven months later acute infectious hepatitis developed and subsided. Diabetes mellitus reappeared, requiring 20 to 24 units of insulin daily for control. The trigger mechanism of acute pharyngitis appeared to precipitate erythema nodosum. Whether that mechanism was related to later sequences of diseases is speculative.

Apparently in this case imbalance between the activity of the pancreatic beta cells in the production of insulin on the one hand and of the anti-insulin or hyperglycemic factors of the thyroid, pituitary, adrenals, liver and diet on the other, mediated in part through the parasympathetic and sympathetic systems respectively, accounted for the development and temporary recession of the diabetes mellitus on the one hand and of the development and subsidence of myxedema on the other.

Physiologic adaptability of the body to anemia has presented a great variety of intersystem effects dependent, to a great degree, upon the extent and rate of development. H. L., aged forty-three, a housewife, consulted a throat specialist because of difficulty in swallowing. Other complaints of headaches, paresthesias in the extremities, and weakness appeared to be of secondary importance although first noted years previously. The throat examination was negative and further investigation was advised and revealed quite profound anemia (hemoglobin 6.3 grams, red cells 3,200,000), primary hypochromic anemia (hematologic study by Dr. H. Downey). Due to the insidious development of the anemia, the gradual physiologic adaptations were adequate enough until the primitive act of swallowing was interfered with. Recovery followed iron therapy. There was no spasm in the upper esophagus and the Plummer-Vinson syndrome was not suggested.

C. S., a male, aged sixty, a cook, neglected the treatment of pernicious anemia for ten months, entered the hospital complaining of cough, pain in the chest and weakness. The typical pallor had its counterpart in a hemoglobin of 4.5 grams, with 1,050,000 red cells per c.mm. When the anoxia conditioned by the low hemoglobin was successfully combated by the parenteral use of liver extract, the angina and cardiac decompensation tended to disappear while under hospitalization as the hemoglobin reached 11.2 grams. Electrocardiographic change supported the diagnosis of coronary insufficiency which became clinically manifest due to high grade anemia and anoxia of the myocardium.

Hypersensitivity of tissues has no more striking manifestation than that caused when the lung acts as a shock organ with huge infiltrations, presumably eosinophilic, with blood eosinophilia due to one of numerous chemical, infectious and/or foreign protein antigenic agents, the syndrome first described by Loeffler.[12] In a case reported by Dr. Ellis and myself[7] in 1941, the exciting agent was prontosil. In a second case, M. B., a farm housewife, aged thirty-six, similar infiltrations persisted for three years with blood and sputum eosinophilia. No provocative agent was found. A third case, recently under observation, is being reported elsewhere.

In the discussion of a group of cases in which multiple etiological factors may have elicited the same change, reference is made to the general adaptation syndrome emphasized by Selye,[17] with the stages of alarm reaction, the stage of resistance and the stage of exhaustion. If, as he states, conditions such as nephritis, rheumatic fever and acute peptic ulcer in some instance, occurred as the result of acute infection and in others could be traced to exposure to intense cold, an intoxication, or an emotional stimulus, the difficulty of interpreting the comparatively uniform response to diverse agents is no longer insuperable if it is assumed that certain lesions are produced by the response of the body to damage as such, rather than to one specific pathogenic agent. Hume[11] recently has presented evidence that the anterior hypothalamus constitutes an important link in the reaction of the body to stress. Included in the findings was the preparation of an effective extract of the hypothalamus which suggests a hormonal mechanism which, when activated in stress, is capable of causing increased secretion of ACTH.

Correlating the work of Cannon[4] on homeostasis, and the work of Selye[17] on the general resistance syndrome, Williams[18] suggests a phylogenetic concept which appears to make sense and which presents allergy not as an unprecedented kind of injurious mechanism which the animal organism has developed and preserved but rather as a gradual growth from the unicellular to the multicellular stage. Following the lead of Cannon[4] and as stated by Petersen[16] and Milliken,[15] the autonomic system, viewed as consisting of the semipermeable membranes of the individual cells, the hormonal system and the autonomic nervous system, is considered to be the physiologic mechanism by which the organism adjusts itself to all changes in its external and internal environment.

The case reports cited are an incomplete glimpse of the parade of the intersystem relationships which present themselves to the practicing physician. On the one hand, the clinician may be struck with the constancy, for instance, of the fundamental nature of the inflammatory reaction, whether called forth by viral or bacterial agent as in chickenpox and as in typhoid fever, respectively. On the other hand, host variation to this or that disease will always present multiple combinations of possibilities, conditioned by factors, beginning with heredity, that influence physiopathologic response.

With the thought that each case represents in some way a new experience and with the hope that as we continue to study medicine throughout our lives we may be more and more able to distinguish the significant from the unimportant, I wish to put in the mouth of the clinician, the words of Ulysses by Alfred Lord Tennyson,

"I am a part of all that I have met;
Yet all experience is an arch wherethro'
gleams that untravell'd world, whose
margin fades
For ever and for ever when I move."

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TUBERCULOSIS IN SELECTEES DISQUALIFIED FOR THE ARMY
1942-1945

The Record in Minnesota

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THE Selective Training and Service Act, which established the Selective Service System throughout the country, was passed by Congress in September, 1940. On October 16 the first draftees in Minnesota were registered and were subject to examination by the physicians of the local boards.

Previous to January 1, 1942, the local board examiner gave the registrant a complete physical examination (a roentgenogram of the chest was not made), and upon the findings of the examiner the board was authorized to disqualify the registrant for military service, or if he was considered by the examiner to be qualified for service, he was sent to the Induction Station for induction. At the Induction Station he was given another physical examination by the Army, including a 4 x 10 inch stereoscopic photofluorographic roentgenogram of the chest and a 14 x 17 inch roentgenogram as indicated.

General J. E. Nelson, former state director, Minnesota Selective Service System, refers to this procedure in a personal communication as follows: "This double examination created many problems, due to the fact that registrants, having been examined by their local board examiners and found qualified, expected to be accepted by the Army, and many of them, upon examination at the Induction Station, were found not physically qualified and were, therefore, returned to their homes as rejected."

Beginning January 1, 1942, the examination of the local board examiner was limited to an inspection of the registrant, and upon the finding of any obvious physical defect, the board was authorized to disqualify him. If the registrant appeared to be without physical defect, he was sent to the Induction Station where he was given a complete examination.

However, the Federal Act authorized the local board to defer from service at any time certain registrants, as expressed in the Act, "whose employment in industry, agriculture, or other occupation or employment, or whose activity in other endeavors is found to be necessary to the maintenance of the national health, safety or interest."

Early in 1942 arrangements were completed for the reporting by the Army Induction Station of all Minnesota men examined and disqualified because of tuberculosis. The reports and also the chest roentgenograms made in the examinations were sent to the Division of Preventable Diseases, Minnesota Department of Health. These reports were received promptly day by day following the examinations. Among the first reports received were those of fourteen men examined in 1940 and 1941.

Dr. Leo G. Rigler, professor and chief of the Department of Radiology, University of Minnesota, was very much interested in the follow-up problem and volnteered to interpret the roentgenograms. The first reports were received March 8, 1942. From that day, and continuing through 1945, Dr. Rigler gave, without compensation, this most valuable professional service.

With the passage of the Selective Training and Service Act, the standards of physical examination as given in the War Department's Mobilization Regulations became effective.

The following specifications are taken from the Army Standards of Physical Examination dated August 31, 1940:

> "The chest examination will include the usual method of physical diagnosis supplemented when indicated by radiographic and laboratory studies."
>
> Listed as *"non-acceptable"*
>
> Lupus vulgaris.
>
> Tuberculosis either active or healed of any portion of the vertebral column, of cervical glands, of ribs or other parts of the chest wall, of a bone or joint.
>
> Fibrinous or serofibrinous tuberculous pleurisy and pleurisy with effusion of unknown origin.
>
> Tuberculosis of the lungs or tracheobronchial lymph nodes except as defined as follows:
>
> Arrested pulmonary tuberculosis consisting of lesions appearing in x-ray examination as small apical scars, small calcified nodules or localized fibrous strands, in no case exceeding minimal extent as defined in the classification of the National Tuberculosis Association, and when, in addition, in the opinion of the examining physician, this lesion is not likely to be reactivated under conditions of military service.

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In later issues of the Army Standards of Physical Examination, reference is made only to tuberculosis of the lungs or tracheobronchial lymph nodes. In the issue of October 15, 1942, there are specified arbitrary limits in the size and number of calcified lesions that would be acceptable; and in the issue of April, 1944, there appears this general statement descriptive of an acceptable condition: "Calcified residuals of primary tuberculosis in the pulmonary parenchyma or hilum lymph nodes, provided the size, number and character of such lesions are not such as to suggest the possibility of reactivation."

The age limits acceptable for the armed services were changed from time to time. but the lower limit (twenty-one years in the original Act) remained constant until November 16, 1942, when it became eighteen years, and this continued through 1945. The upper age limit varied between twenty-five and thirty-seven years except that forty-five was the limit during nine months of 1942, and forty-four was the limit for almost one month of the same year.

In March, 1943, the Governor of Minnesota appointed the following named physicians as members of a "Tuberculosis Review Committee, Minnesota Selective Service System":

J. Richards Aurelius, radiologist, Saint Paul, clinical assistant professor of radiology; Malcolm B. Hanson, radiologist, Minneapolis, clinical assistant professor of radiology; Everett K. Geer, Saint Paul, clinical assistant professor of medicine; Thomas Lowry, Minneapolis, clinical associate professor of medicine; Leo G. Rigler, professor and head of the Department of Radiology—all of the University of Minnesota—and the writer, who is greatly indebted to the other members for their helpful suggestions in our follow-up activities and in the preparation of this report.

From March 8, 1942, to December 31, 1945, the Army Induction Station reported 1,758 registrants examined for the Armed Services and disqualified temporarily or permanently because of tuberculosis (including ten "suspected tuberculosis"). This number is made up of the following groups: 520 previously reported to the Minnesota Department of Health as cases of tuberculosis, 983 "new cases" permanently disqualified (sixty-three were non-residents), and 255 disqualified temporarily (deferred) and to be re-examined in six months.

Of the deferred group, seventy-five were later re-examined and accepted for service and fifty were re-examined and permanently disqualified. The remaining 130 (over 80 per cent were examined in 1944 and 1945) were not re-examined because of age or occupation.

The number permanently disqualified—520 known cases, 983 "new cases," and fifty permanently disqualified by re-examination, total 1,553—was 0.52 per cent of the total number of registrants examined during this period, estimated as 300,000.

Purvine and Erickson[6] reported in February, 1946, that of 117,598 men examined for service in Oregon, 0.8 per cent were disqualified as "possible pulmonary cases." Plunkett[5] has reported that of the men examined from November 25, 1940, to March 14, 1941, in Albany, Syracuse and Buffalo, New York, 0.9 per cent were disqualified because of "roentgen evidence of tuberculosis." Verstanding[7] has reported the findings in 100,000 photoroentgenograms in Connecticut as reinfection or primary tuberculosis in 0.67 per cent. Hyde and Sacks[2] have stated "of selectees examined at Boston Armed Forces Induction Station from December, 1940, to early in 1943, 0.9 per cent were found by x-ray examination to have pulmonary tuberculosis." Wile[8] reports that in 1941, of the men examined in the United States, 0.57 per cent were rejected because of tuberculosis; and Karpenos[3] has given the rejection rate for the entire country for 1945 as 0.71 per cent. Adamson[1] in 1945 wrote, "One and one-half million prospective members of the forces have been x-rayed and examined for tuberculosis in Canada," and that 1 per cent were found to have pulmonary tuberculosis.

Long[4] reviews in full the experience with reference to tuberculosis in World War II, and, in discussing the problems met by the examiners at the Army Induction Stations, he concludes: "But it is a fair estimate that 90 per cent of the significant lesions that should have been seen were discovered." Further on he states: "The cases of tuberculosis that escaped detection at Induction Stations were found in high proportion within a relatively short time by the medical personnel of army posts."

This study is concerned only with the "new cases," 920 Minnesota residents disqualified by the

TABLE I. COMPARISON OF DIAGNOSIS AT INDUCTION STATION, INTERPRETATION OF ROENTGENOGRAM, AND THE SUBSEQUENT DIAGNOSIS BY PRIVATE PHYSICIANS OR PUBLIC HEALTH OR SANATORIUM CLINICS

Diagnosis at Induction Station—Pulmonary Tuberculosis, Reinfection Phase 864.

Interpretation of Roentgenograms received	Section I					Section II
	Subsequent Diagnosis by Physicians*					No record of subsequent Diagnosis
	Reinfection phase	Primary phase	Other lung pathology	Negative	Total	
Reinfection phase (631)	492	14	9	27	542	89
Primary phase (54)	5	24	1	7	37	17
Other lung pathology (98)	33	5	19	20	77	21
Negative (14)	1		1	7	9	5
Total (797)	531	43	30	61	665	132
Roentgenograms not received (67)	58	2	1	2	63	4
Grand Total (864)	589	45	31	63	728	136

*Private physicians or Public Health or Sanatorium Clinics.

TABLE II. COMPARISON OF DIAGNOSIS AT INDUCTION STATION, INTERPRETATION OF ROENTGENOGRAM, AND THE SUBSEQUENT DIAGNOSIS BY PRIVATE PHYSICIANS OR PUBLIC HEALTH OR SANATORIUM CLINICS

Diagnosis at Induction Station—Pulmonary Tuberculosis, Primary Phase 91

Interpretation of Roentgenograms received	Section I					Section II
	Subsequent Diagnosis by Physicians*					No record of subsequent diagnosis
	Reinfection phase	Primary phase	Other lung pathology	Negative	Total	
Reinfection phase (8)	2			3	5	3
Primary phase (69)	1	34	1	3	39	30
Other lung pathology (7)		1	1	1	3	4
Negative (3)				2	2	1
Total (87)	3	35	2	9	49	38
Roentgenograms not received (4)		3			3	1
Grand Total (91)	3	38	2	9	52	39

*Private physicians or Public Health or Sanatorium Clinics.

first examination and fifty by re-examination—total 970.

The diagnosis at the Induction Station was:

Pulmonary tuberculosis, reinfection phase	864
Pulmonary tuberculosis, primary phase	91
Extrapulmonary tuberculosis	5
Suspected tuberculosis	10
	970

The age groups were as follows:

18-19 years	52
20-24 years	135
25-29 years	212
30-34 years	242
35-39 years	211
40-44 years	83
45- years	19
No age given	16
Total	970

In Tables I and II, the diagnosis at the Induction Station, made after physical as well as x-ray examination, is compared with the diagnosis based on the interpretation of the roentgenograms of the chest only, and with the subsequent diagnosis.

As shown in Table I, of the 864 cases of the reinfection phase reported by the Induction Station, there are no records of subsequent examinations of 136; and of the remaining number (728), roentgenograms of sixty-three were not received for interpretation. It is of interest to note to what extent the diagnosis made by interpretation of roentgenograms only, and by subsequent examinations are in agreement with the diagnosis made at the Induction Station. This comparison can be made in only 665 of the reinfection cases as follows:

Interpretation of Roentgenograms

Reinfection phase in	81%	99%
Primary phase in	6%	
Other lung pathology in	12%	
Negative in	1%	

Subsequent Diagnosis

Reinfection phase in	80%	91%
Primary phase in	6%	
Other lung pathology in	5%	
Negative in	9%	

Of the primary cases (ninety-one) reported by the Induction Station, as may be seen in Table II there are no records of subsequent examinations in thirty-nine; and of the remaining number (fifty-two), roentgenograms of three were not received for interpretation. Comparison of diagnosis can be made in only forty-nine cases as follows:

Interpretation of Roentgenograms

Reinfection phase in	10%	96%
Primary phase in	80%	
Other lung pathology in	6%	
Negative in	4%	

Subsequent Diagnosis

Reinfection phase in	6%	82%
Primary phase in	72%	
Other lung pathology in	4%	
Negative in	18%	

Our follow-up activities have been carried on by correspondence, or other means of communication with physicians; school, city, and county public health nurses; sanatorium or public health clinics; and with many of the 970 Minnesota residents who were disqualified for military service.

Many have been checked up in the mass x-ray surveys which are being conducted throughout the state. Many have been interviewed by an epidemiologist of the Minnesota Department of Health. Of those who have left the state and whose new addresses have been known, reciprocal notifications have been sent to the Health Departments of the other states.

Follow-up Record to June 30, 1949

Subsequent Diagnosis.—Reinfection phase: 592 (589 in Table I and 3 in Table II).

276 admitted to sanatoria. Stage of disease on admission: minimal 61, moderately advanced 131, far advanced 77, pleurisy with effusion 3, admitted for observation 4.

30 died in sanatoria.

33 are in sanatoria June 30, 1949.

213 discharged, average period of treatment 13 months.

Status on discharge: 35 arrested, 60 apparently arrested, 48 quiescent, 37 improved, 24 unimproved, 2 others (1 admitted minimal discharged not tuberculosis, Loeffler's syndrome; 1 admitted far advanced discharged not tuberculosis, probably sarcoidosis); 3 tuberculous pleurisy with effusion (2 discharged apparently arrested and 1 improved); 4 admitted for observation (final diagnosis reinfection phase stable 2, diagnosis not established 2). 122 are stable and working, 13 stable and working in 1947 or 1948, 5 stable not working, 8 continue treatment at home, 2 have been accepted by the Army, 11 have died (6 of tuberculosis), 30 have left the state (16 report well and working), of 22 we have no record since discharge from sanatoria.

316 of the 592 reinfection cases were apparently not thought to be in need of sanatorium treatment. 194 are well and working, 45 well and working in 1947 or 1948, 1 has been accepted by the Army, 9 have died (4 of tuberculosis), 44 have left the state (16 report well and working), of 23 we have no further record.

Subsequent Diagnosis.—Primary phase: 83 (45 in Table I and 38 in Table II).

66 are stable and working, 1 has died of coronary occlusion, 3 have left the state (1 is in a sanatorium), of 13 we have no further record.

Subsequent Diagnosis.—Other lung pathology: 23 (31 in Table I and 2 in Table II).

12 definite diagnosis made: 2 atypical pneumonia, 1 bronchiectasis, 3 bronchitis, 1 cystic disease, 2 histoplasmosis, 1 Loeffler's syndrome, 2 silicosis. 1 left the state, died, and cause of death unknown.

20 diagnosis not established, no further record.

Subsequent Diagnosis.—Negative: 72 (63 in Table I and 9 in Table II).

Only 9 were negative by interpretation of roentgenograms and of 2 others roentgenograms were not received for interpretation.

51 are well and working, 7 well and working in 1947 or 1948, 1 has died (nephritis), 3 have left the state (1 reports well and working), of 10 we have no further record.

No Record of Subsequent Diagnosis: 175 (136 in Table I and 39 in Table II).

Of this number (175), roentgenograms were not received for interpretation in 5 cases.

Interpretation of Roentgenograms Only.—170.

Reinfection phase: 92 (89 in Table I and 3 in Table II). 37 stable and working, 15 stable and working in 1947 or 1948, 4 have died (not of tuberculosis), 1 has been accepted by the Army, 19 have left the state (2 have died of tuberculosis and 4 report well and working), of 16 we have no further record.

Primary phase: 47 (17 in Table I and 30 in Table II). 27 stable and working, 1 has died (not tuberculosis), 1 has been accepted for the Army, 6 have left the state (1 reports well and working), of 12 we have no further record.

Other lung pathology: 25 (21 in Table I and 4 in

Table II). 14 well and working, 5 have left the state, of 6 we have no further record.

Negative: 6 (5 in Table I and 1 in Table II). All are well and working.

Roentgenograms not received for interpretation: 5 (4 in Table I and 1 in Table II). 4 well and working, of 1 we have no further record.

Extrapulmonary Tuberculosis: 5.

Of the 5 cases, 3 were of the spine, 1 of the leg and 1 of the ankle. We have no record of subsequent diagnosis. The disease in all of them is apparently stable. Three report well and working.

Suspected Tuberculosis.—10.

3 admitted to sanatoria for observation: 2 diagnosis reinfection phase far advanced (1 died at the sanatorium, 1 in the sanatorium 1 year left the state following discharge, no further record); 1 diagnosis moderately advanced, in sanatorium 14 months now well and working.

3 subsequent diagnosis: 1 cystic disease, 1 bronchiectasis, 1 healed tuberculous pleurisy. All well and working.

1 subsequent diagnosis negative, no further record.

3 diagnosis not established, no further record.

Summary, June 30, 1949

In 659 the disease is stable or apparently stable.
- 528 stable and working.
- 80 stable and working in 1947 or 1948, no recent record (many of these two groups have continued in their former occupations).
- 8 stable, not working.
- 5 have been accepted by the Army.
- 38 have left the state and report well and working.

70 have left the state, no record regarding work.

43 have died of tuberculosis (31 in sanatoria).

18 have died of other causes.

34 are in sanatoria.

8 continue treatment at home.

22 no record since discharge from sanatoria.

81 have had follow-up examinations, no further record.

35 have not had follow-up examinations, no further record.

Total 970 selectees disqualified for the Army because of tuberculosis or suspected tuberculosis, 1942-1945.

Acknowledgments

The writer wishes to record his appreciation of the courtesies and ready assistance of General J. E. Nelson, former director, and Col. L. E. Lilygren, present director of the Minnesota Selective Service System, and their associates, Col. R. A. Rossberg, Col. Richard B. Hullsiek, and Col. Robert B. Radl. (The latter two officers were successively chief of the Medical Division, Minnesota State Headquarters.) He is also deeply grateful for the interest and the advice of Alan E. Treloar, professor of biostatistics, University of Minnesota, in the presentation of the statistical material.

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HEMANGIOPERICYTOMA

(Continued from Page 684)

shows nicely the reticulum sheaths of the many blood vessels so that I feel satisfied that the pattern is correct for a hemangiopericytoma. Of the two Laidlaw impregnations and the one Masson trichrome stain, it will be noted that the last shows the absence of myofibrils in the tumor cells, thus excluding the possibility that the tumor cells are ordinary smooth muscle cells. The stain is adequate for smooth muscle by observing the reddened myofibrils in the walls of the few veins present in the tumor."

Comment.—The tumor has the appearance of a highly vascular, mesenchymal neoplasm. The problem presented is whether the vessels are an integral part of the tumor, or whether they represent merely the blood supply of the neoplasm. Because of the cytologic appearance of the tumor, and its striking vascularity, it would seem that the neoplasm most probably is of an angiomatoid nature. As such it may belong in the group of so-called "hemangiopericytomas." The course may be benign since the tumor appears to have been completely removed, both grossly and histopathologically.

Diagnosis—Vascular mesenchymal tumor, probably "hemangiopericytoma."

Summary.—An unusual extrarectal tumor is reported.

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AN UNUSUAL TYPE OF PULMONARY DISEASE INVOLVING SIX MEMBERS OF A FAMILY

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THIS UNUSUAL pulmonary disease involved an entire family of six people of Scandinavian ancestry. The father, J. P. L., aged seventy-six, was a rather debilitated old man; Mrs. J. P. L., aged sixty-seven, the mother, was a healthy, well-nourished, well-preserved woman; T. L., the older daughter, aged forty-one, was a well-nourished, middle-aged spinster; R. L. aged thirty-one, the older son, was a husky, well-built, physically rugged specimen; D. L., aged twenty-four, the younger son, was only slightly less robust than his older brother; and lastly M. L., aged twenty-seven, the younger daughter, was a fine specimen of young womanhood. All lived in a good, clean, roomy farm home in rural Becker County, near Detroit Lakes, Minnesota.

The father, J. P. L., was critically ill for a long period of time. R. L., the older son, was acutely ill for nearly two months, made a good recovery, but still showed residual of the disease in the radiograph of his lungs twenty-five months after its inception. T. L., the older daughter, had a prolonged illness requiring nearly complete bed rest for over a year and developed some very unpleasant nervous symptoms during convalescence. Mrs. J. P. L. was not very ill and made a good recovery in a shorter length of time. D. L., the younger son, was ill a short time, was not hospitalized, and would not have been seen had he not come in over a year later with a cold. M. L., the younger daughter, was not examined until March, 1950. Cases are offered here in the order that they were seen.

Case Histories

Case 1.—R. L., male, aged thirty-one, became suddenly and acutely ill at noon, January 26, 1948, with severe chills, a sharp rise of temperature and a dry, unproductive cough. He had general malaise but no acute or localizing pain. The family reported a temperature of over 103° F. the night before admission, and the patient himself stated that he had a "bad case of flu." There was no nausea, vomiting or other gastrointestinal symptoms. There were no upper respiratory symptoms and no associated urinary complaints.

His past history was noncontributory and he had enjoyed very good health until the day before his admission, having never been hospitalized until January 27, 1948.

Physical examination showed a young, white man, well nourished, well developed, height 5 feet 10 inches, weight 180 pounds, lying quietly in bed perspiring profusely but in no immediate distress. He was alert and there was no delirium. The temperature was 103.6° F., pulse 84, respirations 20, blood pressure was 125 systolic and 65 diastolic. There was no acute tonsillar infection and there was no exudate in the throat or nasopharynx. The breath sounds were a little more distant at the base of the right lung. There were no râles; fremitus and percussion were normal. The heart showed no evidence of disease.

Course.—The patient ran an irregular temperature for eight days, varying from 100° to 104° F., then the fever gradually subsided, reaching normal on the thirteenth hospital day. He went home, against advice, on the fifteenth hospital day because he felt so well. He was home five days, and on the twentieth day of his illness he was readmitted to the hospital with a temperature of 101° F., and pain in the right lower chest, aggravated by deep breathing or coughing. Physical findings were much the same as on the former admission except that respirations were grunting, painful and shallow; the rate was 32 as compared with 20 per minute on previous admission. The percussion note over the right lower chest was less resonant, and tactile and vocal fremitus were decreased over the same area. The acute symptoms subsided in five days and a small amount of fluid was obtained at this time by thoracentesis. The fluid was serosanguinous and no bacteria were found by direct smear. From this point on, he ran a favorable course with a low grade temperature up to 100° F. until the thirty-fifth day of his illness and after that his temperature never rose above 99° F. On the twenty-eighth day of illness he developed a thrombophlebitis of the left femoral vein. Recovery from this was good and did not affect his hospital stay. He was discharged from the hospital on the fifty-fourth day after the initial onset and, except for a dry cough and being a little weak, was asymptomatic. The dry cough is still present in the morning after twenty-five months.

The routine laboratory tests were followed closely during the first two months with the hope of finding some trend or clue that would throw light on the actual diagnosis or yield something that was characteristic in this series of cases. The urine examinations were the same as would be found in any febrile, respiratory infection. Routine blood examinations with differential counts showed normal hemoglobin and red count findings in all cases, the white blood count was normal or slightly elevated and the differential was variable with no definite pattern. Repeated agglutination tests failed to show evidence of typhoid, paratyphoid, brucellosis and tularemia. Complement fixation tests were nega-

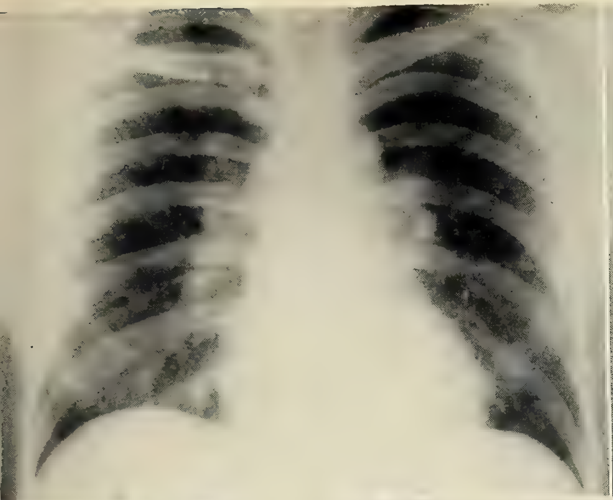

Fig. 1. (*Upper left*) Case 1. Radiograph of lungs taken on second day of illness. There is some infiltration of both lungs. Shadows about hili.

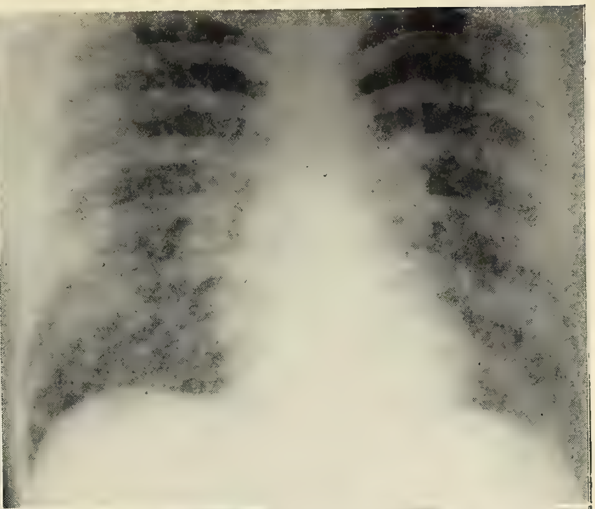

Fig. 2. (*Upper right*) Case 1. Radiograph taken on thirteenth day of illness. There is extensive involvement of all lobes in both lungs, definite nodular infiltration with coalescence of nodules, much like Case 2 and more rapid than Case 4.

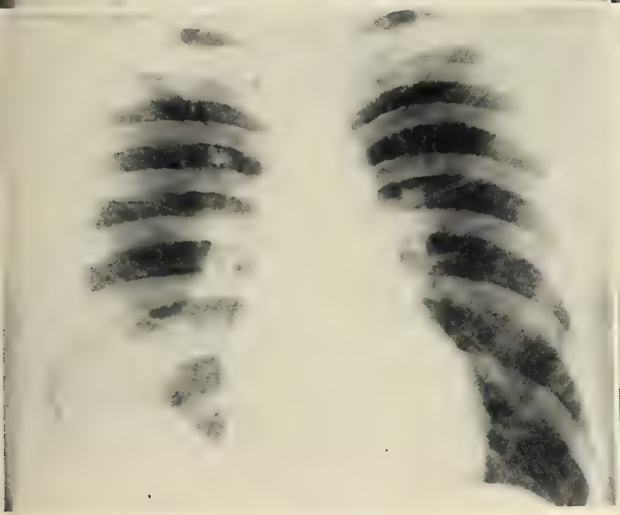

Fig. 3. (*Lower left*) Case 1. At the end of two months (March 31, 1948) radiograph shows definite clearing of both lungs. Pleurisy at right base evident.

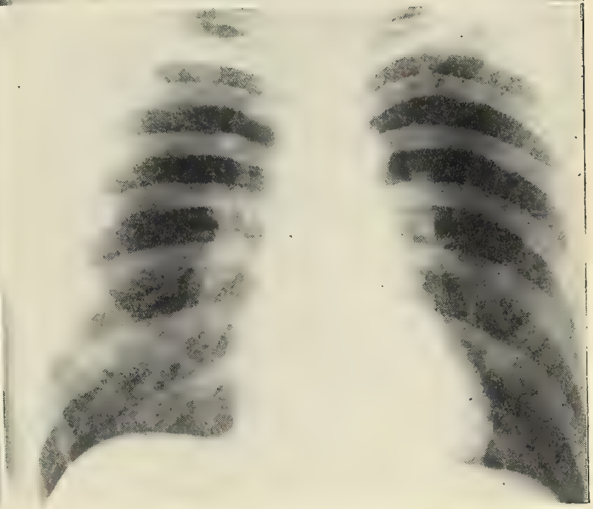

Fig. 4. (*Lower right*) Case 1. Radiograph taken March 13, 1950, or twenty-five and a half months after inception of disease. There is almost complete recovery but a few nodular areas are visible with fibrosis, particularly at right base.

tive for "Q" fever and ornithosis. The Kline exclusion test for syphilis was negative. Sputum was not obtained until the twenty-third day of illness when it showed many red blood cells, leucocytes and Gram-positive cocci occurring in pairs and chains. No acid-fast bacilli and fungi were found. Special cultures showed yeast-like organisms which were morphologically and culturally identical to Candida (monilia) ablicans. Guinea pig inoculations from the sputum were negative for acid-fast bacilli.

The radiographs (Figs. 1 to 4) taken of this patient's lungs at the onset and followed for twenty-five months, as in Case 4, tell an interesting story of minimal pulmonary infiltration initially, gradual development, pleurisy, massive involvement of both lungs with gradual clearing and partial resolution. The first film of the lungs on admission, the second day of the disease, showed an increase in the bronchovascular markings throughout both lungs with a few tiny nodules on the right side and a few on the left side in the middle portion. A week later there were numerous nodular densities extending from the apex to the base on both sides. Later, at the second admission, there was marked coalescence of the process with fluid in the right pleural cavity and diffuse nodular and infiltrative processes in both lungs from apex to base. Two months after onset, on March 31, 1948, radiographs showed the first clearing of the pulmonary condition. From then on, improvement was gradual but steady, and after twenty-five months the last radiographs of the lungs showed practically complete resolution of the old inflammatory process in the lung fields. Fibrosis was present in the right lower lung field, but nodularity had cleared.

Case 2.—Mr. J. P. L., aged seventy-six, was admitted to the hospital January 30, 1948. He was taken ill one day earlier, just three days after the onset of R. L.'s illness (older son). He had a rise of temperature, a dry cough, was weak and confused. His past history was of no consequence, except that he had had pneumonia following influenza in 1918; otherwise, he has always been well.

Examination showed his temperature to be 103.6° F., pulse rate 100, respiratory rate 40. The respirations were shallow with râles at the end of inspiration heard at the posterior bases of both lungs with more involvement on the right side. Vocal fremitus was decreased at the right base. His blood pressure was 150 systolic and 90 diastolic with marked arrythmia; peripheral sclerosis was considerable. The urine was involuntary with a residual urine of 30 c.c. The skin showed a red, indurated area on the bridge of the nose which spread out on the cheeks in a circle 2 inches in diameter and gave the impression of being erysipelas and not connected with the respiratory condition. He had a marked hypertrophic arthritis with general distribution. He was conscious most of the time but acutely ill with the outcome in doubt for several weeks. He was in no pain but presented the appearance of an exhausted, worn out, old man.

The course of disease was prolonged. This was partially due to heart disease, advanced arteriosclerosis and poor general condition. The first two days in the hospital, his temperature was 103.6° F., all readings being rectal in this case. From then on the readings were 101° to 102° F. with one chill. The temperature receded on the twenty-first day and reached normal on the twenty-seventh hospital day. At this period he did very well for ten days, but on the thirty-seventh day of hospitalization, he had a chill, with a sharp rise of temperature to 103° F. The elevation of temperature persisted with a daily low of 100° F. and daily high of 102° F. On his fiftieth hospital day it began to recede slowly and on the seventieth hospital day he became afebrile. His improvement was slow but constant and he went home on the ninety-eighth day of illness in fair condition. His general health is now good at the end of twenty-five months.

The laboratory findings in this case were noncontributory to the diagnosis. Urine examinations were well within normal limits. The blood examinations showed a negative Kline exclusion test. Red blood count was 4,600,000; hemoglobin, 14.4 gm.; white blood count, clear; polymorphonuclear, 65; lymphocytes, 32; mononuclear 3. Serum protein, 6.4 gm.; albumen, 2.4 gm.; globulin, 4.0 gm. Serological tests were negative for "Q" fever and ornithosis. Agglutination tests were negative for typhoid, paratyphoid, brucellosis, and tularemia. The sputum yielded nothing significant on direct smears or guinea pig inoculation.

The radiographs (Figs. 5 and 6), taken at frequent intervals, showed a well developed, diffuse infiltrative process with definite nodules as seen in Case 1 (Figs. 1 to 4) and Case 4 (Figs. 7, 8 and 9). This involved all lobes of both lungs, reaching a peak at about the end of six weeks, and began clearing slightly at the beginning of the ninth week, with marked clearing at the end of three months.

Case 3.—Mrs. J. P. L., aged sixty-seven, became ill January 29, and was admitted to the hospital on February 10, 1948. The onset of her illness was gradual with a nonproductive cough, chills and rise of temperature. The chills were not severe and usually occurred in the afternoon on succeeding days. She was gradually weakened by the disease and was hospitalized on the thirteenth day of her illness. Physical examination showed a white female, well developed, well nourished with no evidence of being severely ill or prematurely old. The temperature at admission was 98.6° F., heart rate 80, respiratory rate 20 with good mobility of the lungs and diaphragm. There was a moderate nonproductive cough with râles heard at the left posterior base during the entire inspiratory phase. There were scattered râles at the right base. The blood pressure was 140 systolic and 80 diastolic. The heart findings were normal. There was a moderate degree of hypertrophic arthritis.

She remained in the hospital sixteen days and did very well, running a much milder course than Cases 1 and 2. Her improvement continued at home and when last seen, in December, 1949, felt quite well and general physical examination was normal.

The same laboratory procedure was followed as in previous cases with essentially the same results. In this patient no sputum could be obtained.

Radiographs were obtained on admission, at the end of the first month's illness, near the end of the first year, and a last film on March 4, 1949. The findings were similar to cases previously recorded, but less extensive although all lobes of both lungs were involved. The last film taken March, 1949, showed considerable clearing as compared to films taken in 1948. The shadows at the lung roots were less dense.

Case 4.—T. L., aged forty-one, an unmarried, older daughter, was taken ill the last week of January, 1948, three days after R. L. (Case 1). The onset was not so acute as his. She went to bed with chills, fever, night sweats, malaise and general weakness. She improved after two weeks and was doing well until the first of March, 1948, when she reported to the office with a severe dry, nonproductive cough and pain in the right side of the chest. Radiographs of the lungs (Figs. 7, 8 and 9) at that time indicated findings similar to her brother, R. L., with nodular infiltration into both lungs. This, however, was not extensive at this first examination. Her temperature was 98.2° F. in the afternoon and the pulmonary findings were well within normal limits. During the following month (April, 1948) the cough grew worse, developed into severe paroxysms but was nonproductive and all attempts to collect sputum failed. The treatment was rest in bed at home until May 13, when she entered the hospital as she was having slight rises of temperature up to 100°F. with chills and night sweats.

Physical examination at admission showed temperature 100° F., pulse 90, respirations 22, blood pressure 112 systolic and 70 diastolic. She was well developed and well nourished, coughing and apprehensive but in no great distress. No râles were heard. All other phys-

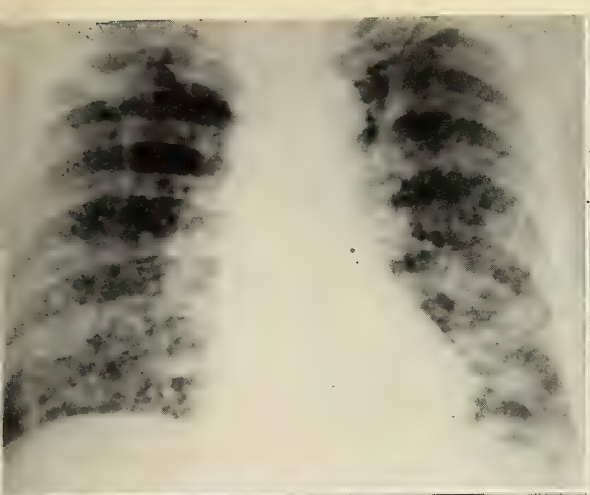

Fig. 5. (*Upper left*) Case 2. Radiograph taken four and a half weeks after manifestation of symptoms shows extensive nodular infiltration in all lobes of both lungs.

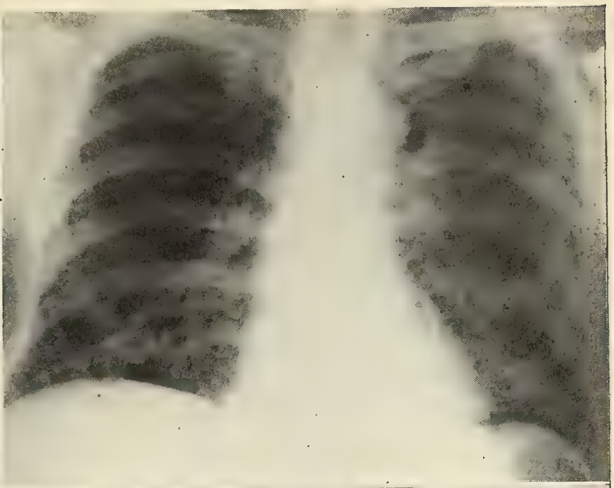

Fig. 6. (*Upper right*) Case 2. Radiograph taken April 30, 1948, shows good resolution after three months. Patient left hospital a week later.

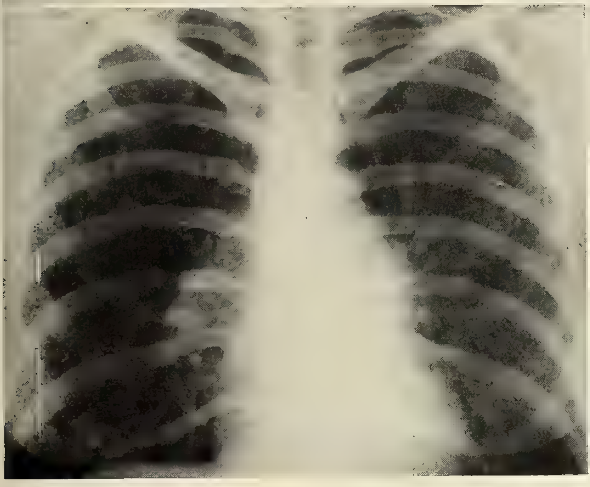

Fig. 7. (*Lower left*) Case 4. Radiograph taken March 31, 1948, a little over two months after onset of symptoms shows lesions similar to Cases 1 and 2 but not extensive. The two later cases showed resolutions at a similar period in the disease.

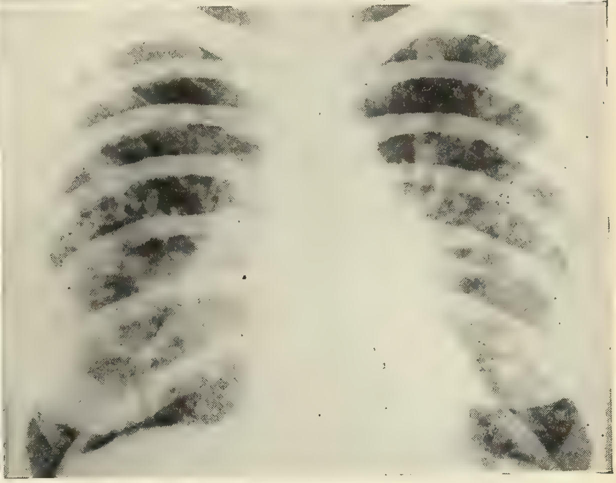

Fig. 8. (*Lower right*) Case 4. Radiograph taken June 30, 1948, near the height of disease, and five months after symptoms began.

ical findings of the respiratory system were well within normal limits. The laboratory and x-ray findings are summarized below.

She remained in the hospital thirty-two days and was sent home on bed rest except for bathroom privileges. Through June and July (1948) she showed slight improvement but still had night sweats and an afternoon temperature of 99.6° F. There was little change in August and September, and the last week of the latter month she was sent to the University Hospital for further consultation and study to see if the cause of this unusual condition could be found. From there Dr. Wesley Spink reported the following: Urine normal; blood: Hemoglobin, 13.7 gm.; white blood count, 6.700; polymorphonuclear, 63; lymphocytes, 29; mononuclear, 7; eosinophil, 1. Sedimentation rate was normal. The tuberculin skin test was negative; a skin test carried out with triple antigens of histoplasmin, blastomycin, and coccidioidin gave a one plus reaction. The vital capacity was 3200 c.c. Electrocardiogram showed a tendency towards right axis deviation; otherwise it was normal. X-ray showed a definite subsiding of the nodular lesion as compared to previous films. Dr. Spink gave the following impressions: "I reviewed the x-rays of the whole family with Dr. Leo Rigler and he is of the opinion that this family had a pulmonary fungus infection, probably aspergillosis. He felt the nodular type of lesion was in favor of a fungus infection rather than a complication of a virus pneumonia. I feel absolutely certain this patient will recover from her illness with little or no residual."

Following the consultation with Dr. Spink and Dr. Rigler (September, 1948) the sweats and cough continued to improve but she became extremely nervous, apprehensive and developed a severe insomnia which seemed to be related to her thoughts regarding sex and suppression of the sex impulse. She frequently expressed a fear of insanity and was greatly depressed

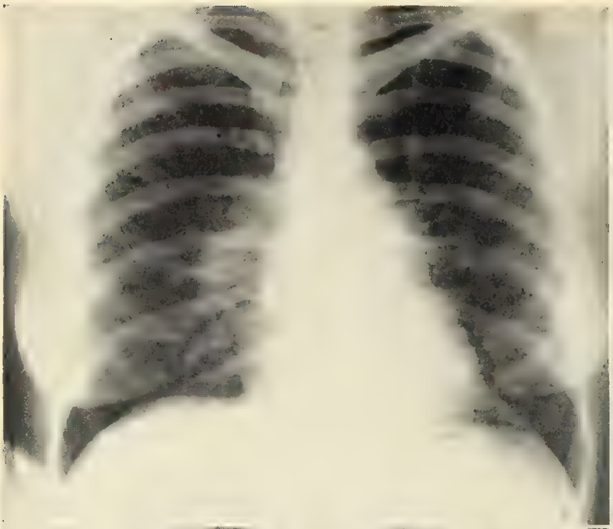

Fig. 9. (*Upper left*) Case 4. Last radiograph taken on March 13, 1950, twenty-five and a half months after patient became ill. Fibrosis and nodules remain. The hilar shadows are prominent.

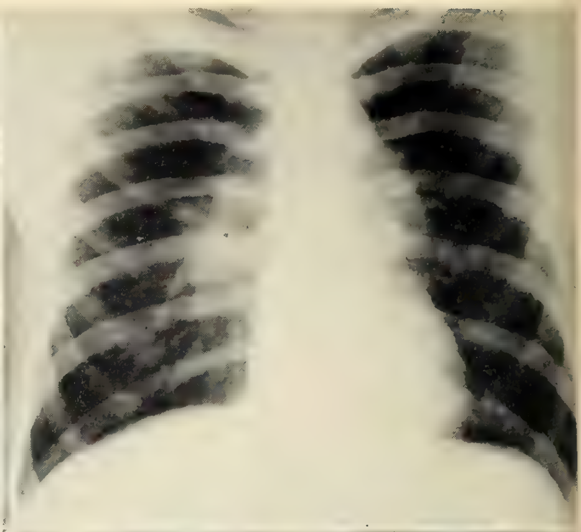

Fig. 10. (*Upper right*) Case 5. Radiograph taken April 13, 1949, about fifteen months after beginning of family epidemic. There are nodules as in other cases, and considerable hilar shadows.

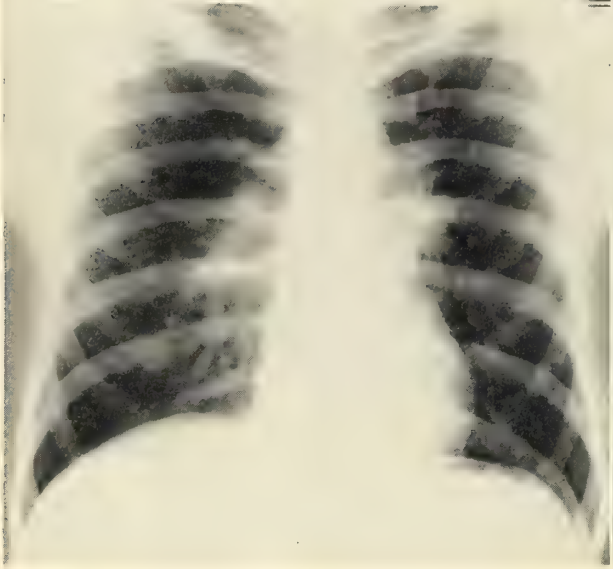

Fig. 11. (*Lower left*) Case 5. Radiograph taken June 25, 1949, as patient improved. This shows the hilar shadows are improved.

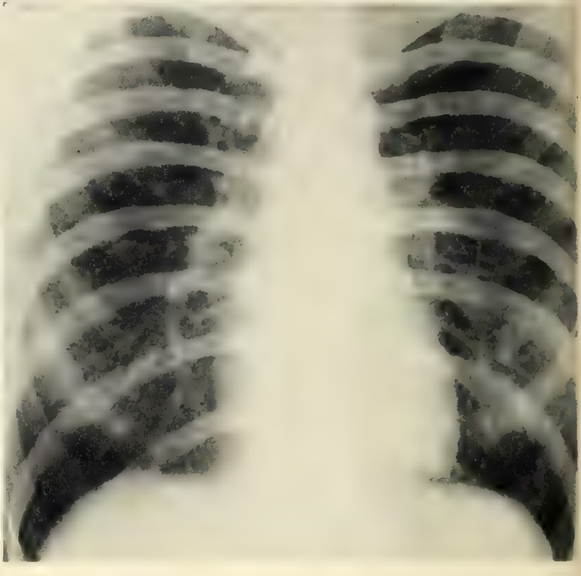

Fig. 12. (*Lower right*) Case 6. Radiograph taken March 1950. The patient was asymptomatic but showed fibrosis and nodules seen in other cases in family. This corresponds to findings in radiographs of Cases 1 and 4 taken at the same time.

during the winter of 1948-1949. She had a daily rise of temperature to about 99.5° F. until June, 1949. After that she became less nervous, gained a little weight (the loss had not been great) and the rises of temperature were less frequent. By the last of August, 1949, she admitted she was definitely improved and radiographs of the lungs confirmed this. By the last of November, twenty-two months after her illness began, she still had an occasional rise of temperature in the afternoon, as high as 99.7° F., had a slight aching pain in her chest and abdomen, a dry cough in the morning, but was able to be up most of the day and to do light housework in the farm home. She weighed 142 pounds which was about five pounds more than she weighed when she first came to the hospital. The nervous symptoms were much improved. The lungs were normal to physical examination and there were no sweats during the day or night. By March, 1950, she felt she was entirely recovered except that she admitted a mild dry cough on arising in the morning.

All laboratory tests used in Case 1 were tried and were devoid of positive results. The sputum could not be obtained.

Radiographs of the lungs showed the same nodular densities as in the other five cases and perhaps were more like Case 1 than any other member of the family. However, there was a difference in the progress of the pulmonary shadows. In Cases 1 and *2*, a peak of the disease seemed to be reached in about six to eight weeks, and at the end of the two months resolution began. In this case, the maximum findings in radiographs of the lungs occurred in June and July, 1948, about five or six months after the inception of the disease and there was no resolution noted until the last of August, 1948 (seven monhs). The last radiograph taken was in March, 1950, and showed nodular infiltration in the lung fields had almost cleared, some fibrosis and nodularity remaining but resolving. The hilar shadows were still prominent.

Case 5.—D. L., younger brother, aged twenty-four, was first seen in April, 1949, about fifteen months after Case 1. He complained of a racking nonproductive cough, had slight rises of temperature, felt weak and tired. His past history was significant. He was taken ill in January, 1948, three days after his brother R. L. (Case 1). At that time, he was in bed at home for one week, was convalescent at home for a week and had been well until the present complaint. A Mantoux skin test gave a positive reaction and radiographs of the lungs taken April 14, 1949, were strongly suggestive of the same nodular infiltration shown in Cases 1 to 4. The findings in Case 5 were much less extensive. He ran a temperature of 99.5° F. for six weeks but by the first of July, 1949, was afebrile and asymptomatic. The laboratory findings failed to throw any light on the family epidemic. His sputum was negative for acid-fast bacteria, and the study for the various fungus infections revealed nothing. This may well have been a new respiratory infection superimposed on the old one that had occurred simultaneously with the other five cases in January, 1948, and the new infection provoked a slight flare of the previous symptoms as the radiographs (Figs. 10 and 11) indicated the old process was there and had been for a considerable length of time. He still had a mild, dry cough in March, 1950.

Case 6.—M. L., the younger daughter, aged twenty-six, was not seen until March, 1950, over twenty-five months after the family epidemic occurred. She gave the history that she had been taken ill three days after her brother (Case 1) and was ill with something resembling the "flu" for over a week. She was in bed at home the greater part of ten days. She was married four months later and now has a baby ten months old, that is well so far as the mother and her family physician know.

A radiograph (Fig. 12) of the lungs on March, 1950, showed some fibrosis and nodularity of the lung fields, particularly on the right. These lesions are similar to the disease shown in radiographs taken of the other patients at this same time.

Treatment

Aside from the routine nursing care and symptomatic treatment accorded these patients, they were given first sulfadiazene or sulfamerazine in one gram doses every four hours. Later potassium iodine in saturation doses was given alone and with the sulfa drugs. Then penicillin and streptomycin were tried in the usual doses. The iodine was given on the ground that Monilia were present in the sputum. R. L. (Case 1) felt that he was benefited by the sulfadiazene potassium iodine combination, but my personal observations lead me to believe that all the treatment as given above was ineffective, except the bed rest and general nursing care.

Comment

All six members of the same family who constituted the entire household living on this farm had the same epidemic, pulmonary disease. It should be remembered that the family lived in a clean, well-kept farm home. R. L. (Case 1), aged thirty-one, became ill first and on the third and fourth day following, the other five patients were stricken. The symptoms were similar to influenza, consisting of a temperature rise of varying degree, a rasping nonproductive cough, chills and general malaise. The symptoms may be severe and acute as in Cases 1 and 2, or rather slow with an insidious onset as in Cases 3 and 4. Case 4 reached a peak five months after inception. Recovery from symptoms was slow in three of these patients, Cases 1, 2 and 4. A dry morning cough has persisted in three patients, Cases 1, 4, and 5, for over two years. Radiographs of the lungs show that resolution was slow in all patients followed during the twenty-five months of observation. The nodular infiltration was gradually replaced by linear fibrosis, noted in Cases 1 and 4. R. L. (Case 1), showed yeast-like organisms which were morphologically and culturally identical to Candida (monilia) albicans. In reviewing radiographs of the family, Dr. Leo Rigler decided that they had a pulmonary fungus infection, probably aspergillosis. He felt that this diagnosis was preferable to monilia or virus pneumonia. These cases may well have been aspergillosis with monilia present. Monilia albicans is the only fungus thought pathogenic to man (Smith of Duke) and is frequently an incidental finding in the sputum without causing any apparent disease.

Acknowledgment

Appreciation is expressed by the author to Drs. Wesley Spink, Leo Rigler, S. Friefeld and C. W. Parker for their interest and assistance in the diagnosis and care of these patients.

ACUTE INVERSION OF THE UTERUS

Report of Case

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ONE of the difficulties encountered in country practice is treatment of serious obstetrical complications. Inversion of the uterus, though rare, may prove most difficult to handle, especially outside a hospital.

This condition probably occurs more often than is readily apparent from the figures usually quoted. Figures vary from Findley's estimates[5] ranging from an incidence of one in 400,000 to one in 23,000 labors, and McCullogh's[15] of one in 30,000 down to the statistics at New York Lying-In-Hospital,[15] where inversion of the uterus occurred once in 3,992 deliveries.

There are various degrees of inversion, designated respectively as incomplete, complete, and prolapse of the inverted organ through the introitus. It may also be classified as acute, subacute, and chronic inversion.[9]

There is a diversity of opinion as to the etiology of uterine inversion, but there are several factors involved, such as marked relaxation or thinness of the uterine walls, excessive pressure on the fundus, and traction on the umbilical cord. However, these factors do not explain the occurrence of inversion in those cases where the placenta is delivered with no assistance.[4] Its occurrence is also favored by fundal insertion of the placenta, and it may perhaps occur spontaneously as the result of intraabdominal pressure, or from mere weight of the intestines.[4,15] McKeown and Rankin[11] reported two cases where inversion occurred, in one case on the fifth postpartum day following prolonged efforts to empty a distended bladder, and in the other case on the thirteenth postpartum day while attempting to expel a difficult stool. Usually, however, inversion occurs immediately after delivery.

Complete inversion is usually simple to diagnose, but incomplete inversion may remain unrecognized, unless careful abdominal palpation reveals the absence of the fundus, or shows a crater-like depression above or behind the symphysis. Unexplained shock following delivery should suggest this possibility, and make imperative immediate vaginal examination by which means the diagnosis is readily established.

Mortality rates have been excessively high. If the condition is recognized and the uterus replaced immediately, the prognosis is good.[6] However, if strangulation or gangrene occur, the outlook is very grave, with the cause of death usually due to shock with or without hemorrhage.

Immediate vaginal reposition of the inverted uterus may be accomplished relatively easily at first, if the patient is not in shock;[4] however, if several hours have elapsed, it may be very difficult. If reposition is not possible, immediate treatment of shock is essential.

Barrett[1] and Henderson and Alles[7] in their articles state that shock with its attending morbidity and mortality can be avoided in the majority of cases. Barrett emphasizes and reemphasizes the point that there is usually a period immediately after the inversion when immediate manual reposition can be performed before severe shock and hemorrhage have taken place, but if one does not take advantage of this very short period of time, unfavorable circumstances develop extremely rapidly and dramatically with a very poor prognosis. An excellent prognosis follows immediate reposition of the uterus.

Clahr and Wurzbach[3] reported a case of their own and of only one other previously reported case where, coincidentally, the uterus was reduced following intravaginal packing for control of the bleeding. It was suggested that where vaginal packing was indicated, a large amount of packing be employed.

O'Sullivan[14] reported his experience in two cases, where the uterus was replaced by hydraulic pressure, when attempts at simple replacement failed, by distending the vagina to capacity by means of a dettol-and-proflavine douche, retained by blocking the vaginal outlet with his forearm aided by his assistant's hands.

Several operative procedures for acute and chronic inversion have been devised for vaginal and abdominal reposition of the uterus.[8,12,13]

Recently, however, more conservative management has been advocated, when immediate reposition was not possible, consisting of treatment of shock, control of bleeding and infection, and postponement of surgical correction of the abnormal uterus for some weeks.[2,10,12,16]

The following is the report of a recently treated case, which we present as an addition of one more case of this very uncommon obstetrical complication:

Mrs. O. H., aged thirty-five, para 2, was seen on August 16, 1948, and complained of vaginal itching, intermittent spotting, and "morning sickness" of three to four weeks' duration. Because of this intermittent spotting, she did not remember the exact date of her last menstrual period. Her periods previously were regular but always very scanty and of only two to three days' duration. Examination revealed the uterus to be enlarged in size consistent with a two months' pregnancy.

The patient's past history is as follows: On August 9, 1943, she was delivered of her first child, a full-term infant, followed by a normal convalescence. She began bleeding profusely after getting up on the ninth postpartum day, and was soon transferred to a larger hospital, exhibiting marked pallor, weakness, cold extremities, weak pulse, and a blood pressure of 78/?. The patient was given 500 c.c. of whole blood followed by 1,000 c.c. of 5 per cent glucose during the dilatation and currettage, which yielded a piece of placental tissue 3 x 4 x 5 cm., reported by the pathologist to be degenerative decidual and placental tissue. Postoperatively, her temperature ranged from 102 to 105 degrees, for which she received sulfadiazine until it fell gradually to normal on September 1. Following transfusion, because of a persistent anemia, she was discharged on September 7.

On November 2, 1945, she was delivered of an infant weighing 4 pounds 9 ounces after seven and a half months' gestation. Very little bleeding followed, but the physician who attended her previously, packed her uterus and transferred the patient to the same hospital, with the statement that "only half of the placenta was expressed following a normal delivery." With a suspicion of a retained placenta, a dilatation and currettage was performed, and the surgeon stated, "Many small fragments of placental tissue were removed, but no large pieces of tissue were found." The pathologist reported the tissue from the uterus to be blood clots, so we are left with the possibility either that the entire placenta was delivered initially, or that any remaining fragments were removed on the pack. Postoperatively, her temperature rose to 104° which quickly subsided with the administration of penicillin, and the patient was dismissed from the hospital on November 11.

At the time of her last pregnancy the patient intended to be delivered at the hospital and by the group to which she was referred before. As a result, she was followed prenatally by them as well as by myself. Her prenatal course was normal. On March 16, 1949, a flat plate of the abdomen revealed a breech presentation with the placenta on the posterior wall of the upper uterine segment. Attempted external version by them that day was unsuccessful.

At 2:15 a.m., on March 21, 1949, the patient's membranes ruptured following one pain, and almost immediately, pains of moderate intensity continued to recur every four minutes. Not having time enough to go to the hospital of her choice, she entered the local community hospital. Examination was negative except for the breech presentation. Using drop ether anesthesia and 1 per cent novocaine infiltration at the site of the left mediolateral episiotomy, a complete breech, S.L.A., was delivered without too much difficulty, at 3:45 a.m. The baby, a normal male infant, breathed spontaneously; bleeding was average.

A few minutes later, while I was attending the baby, the patient complained of more severe "labor-like" pains. The placenta was presenting at the introitus and was delivered easily with minimal gentle massage of the uterus, but it was followed by the completely inverted uterus, through the vagina. The placenta was separated a little and the uterus bled moderately. After giving the patient 1 c.c. of ergonovine intravenously, the placenta was removed without any apparent increase in bleeding. However, in about one minute, the patient began complaining of severe abdominal and back pain, at which time she turned pale, became pulseless, her blood pressure was unobtainable, and she became very dyspneic, fighting for air. There being only the nurse and myself present, the nurse administered oxygen while I replaced the uterus, still inverted, into the vagina, and concentrated my attention solely on treating the shock. I started plasma intravenously, since there was no blood immediately available, and hastily and temporarily repaired the episiotomy. The slight manipulation of the uterus aggravated the shock. The patient was also given morphine sulfate gr. 1/4 and atropine sulfate gr. 1/150 intramuscularly, another cubic centimeter of ergonovine intravenously, and 1 c.c. of pitocin intramuscularly.

After about an hour and a half, during which time the patient received 1,250 c.c. of plasma intravenously, the blood pressure finally began to rise to 70-80 systolic, pulse became perceptible but thready at 120 per minute, and she was breathing easier. She was then transferred, by ambulance, to a larger hospital 45 miles away, where we arrived about 6:15 a.m., her pulse and blood pressure remaining the same during the trip.

When we arrived at the hospital, the patient's blood pressure was 94/50, pulse was 120 and thready, hemoglobin was 44 per cent (17 gms. 100 per cent), and she was breathing fairly easily. The foot of the bed was elevated and her blood pressure rose to 110. While waiting for cross matching, the patient suddenly became dyspneic again, passed more blood vaginally, her blood pressure began to fall, and the pulse became weaker, so plasma was started. During the transfusion, she continued to do poorly and continued to bleed. It was then decided that the patient needed surgery, even though she was in shock, and she was taken to the operating room at 9:15 a.m.

A low midline incision was made and the inverted uterus converted to a normal position by grasping the uterus with a ring forceps, beginning at the edge of the crater until the apex was reached, and applying both traction from above and pressure from below. The ovaries and tubes had not been drawn into the crater, but there was marked hemorrhage into the left broad ligament with some difficulty in establishing landmarks. A subtotal hysterectomy was accomplished. Anesthetic used was ether by drop method as well as by machine. During the operation, the patient received 3,000 c.c. of citrated whole blood, 250 c.c. of plasma, and 500 c.c. of 10 per cent glucose in normal saline. Time for narcosis was two hours and thirteen minutes, and time for the operation was one hour and twenty-four minutes. No stimulants were given.

Her blood pressure which was unobtainable during the entire procedure, suddenly rose to 110/60 during the last fifteen minutes of the procedure, and her pulse suddenly slowed down to 80 to 92 per minute, but became intermittent and remained weak. When the patient was returned to her room, her hemoglobin was 66 per cent and respirations were 18 to 24 per minute. An additional 2,000 c.c. of normal saline was given intravenously, and within one-half to one hour, the patient passed about 1,000 c.c. of clear urine.

She was given penicillin and streptomycin and remained afebrile except for the day following the operation, when her temperature rose to 99.6°. The patient made an uneventful recovery, and was discharged on March 30, 1949, the ninth postoperative day.

Pathological examination of the uterus revealed no malignancy, but there was some intergrowth of the placental and muscle fibers consistent with retained placenta.

Summary

Acute inversion of the uterus is a rare obstetrical complication representing a very acute emergency. Its etiology and treatment are still controversial subjects. If immediately recognized, it can usually be manually reposed to its normal position relatively easily with an excellent prognosis; but if delayed for only a short time, the prognosis becomes very poor, with the necessity of shock being treated immediately, thereby delaying surgical reposition of the uterus for from several days to several weeks.

This is the case of a woman, with a history of having had a retained placenta with her first pregnancy and a clinical suspicion of a retained placenta with her second one, who had a breech delivery followed by an acute and complete spontaneous inversion of the uterus. Plasma and oxygen were the only things available for treatment of shock until the patient was transferred to a larger hospital, where she remained in shock for more than five hours, when operation as a desperation measure was attempted, and a subtotal hysterectomy successfully accomplished. The patient received about 3,000 c.c. of type A and type O blood without the slightest suggestion of renal impairment, and made a very rapid, successful, and uneventful recovery.

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CHRONIC ILLS STUDIED

Chronic illness was designated "the nation's number one health problem" by a group of experts meeting in Chicago in May to discuss the prevention and treatment of such ailments as heart diseases, cancer, tuberculosis, hardening of the arteries, apoplexy, diabetes, arthritis, rheumatism, paralysis, and long-term disabilities resulting from disease or accident. Community-wide planning and action were recommended for the better control of chronic diseases.

Such diseases constitute one of the major health problems in Minnesota today, since they include six of our ten leading causes of death—heart disease, cancer, and intracranial vascular lesions being the first three, and diabetes, nephritis, and arteriosclerosis ranking sixth, seventh, and eighth, respectively.

The group meeting in Chicago was the Commission on Chronic Illness, established in May, 1949, by the American Medical Association, American Hospital Association, American Public Welfare Association, and American Public Health Association. Information on the chronic disease programs now in operation in various states and cities may be obtained from the Commission offices at 535 North Dearborn Street, Chicago 10, Illinois.—*Minnesota's Health*, June, 1950.

PAROXYSMAL TACHYCARDIA WITH ATTACKS OF UNCONSCIOUSNESS

Report of a Case

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SYNCOPE with prolonged unconsciousness is an infrequent manifestation of paroxysmal rapid heart action. Seldom does it occur in youth in the presence of a normal heart. Such a situation came under our observation recently, and we felt it of sufficient interest to warrant a report. A review of the literature reveals only occasional mention of this particular occurrence.

Barnes[1] credited Savini with speaking of a syncopal form of paroxysmal tachycardia in 1912. In 1926, Barnes called attention to cerebral symptoms as manifestations of rapid heart action when he reported fifteen instances in a review of 104 cases of paroxysmal tachycardia. Four of these patients had syncopal attacks during seizures.

In reviewing the general subject of syncope, Williams[3] commented on a series of 100 cases of paroxysmal tachycardia. Fifteen patients had cerebral symptoms; of these, four experienced syncopal attacks; two had convulsions.

White,[2] without giving figures to indicate incidence, mentioned convulsions along with angina pectoris, congestive failure and persistent electrocardiographic changes as manifestations of paroxysmal rapid heart action.

Wolff,[5] in an extensive review of the cardinal manifestations of paroxysmal tachycardia, reported on a series of 253 patients. Of these, forty (16 per cent) experienced vascular collapse. Twelve patients of this group had normal hearts. Only one patient was in an age group under the fourth decade. The factor of age was not considered important, except that circulatory failure may be induced by somewhat slower rate in the aged than in younger patients. In 1942, in an earlier report, Wolff[4] reviewed six cases of central nervous system manifestations secondary to paroxysmal rapid heart action. Four of the patients had hypertension and two had coronary heart disease. Unconsciousness occurred as a transitory phenomenon in two cases.

Report of a Case

A farmer and former high school athlete, twenty-one years old, came to the clinic for evaluation of "convulsions." The patient was accompanied by his father (the father had witnessed three of nine attacks). During the three years prior to his registration at the clinic the patient had experienced nine attacks of unconsciousness, with loss of memory for the event. Sedative agents had been tried without benefit. An aunt had migraine. There was no familial history of allergy or of a convulsive disturbance. Previous infliction of trauma to the head was denied.

The initial attack had occurred in May, 1946. At the end of a 100-yard dash in high-school competition, the patient had collapsed and fallen motionless to the ground. In the ensuing half-hour to an hour, repeated efforts to arouse him were unsuccessful. He was flushed and breathed heavily. The pounding of his heart was noted by his coach, but no undue significance was attached to it. He recovered spontaneously. He was "groggy," but after ten to fifteen minutes felt able to remain at the field to watch further competition, and did so. The episode was dismissed as "runner's fatigue."

Five months later while the patient was playing basketball, a second episode occurred. The patient sensed that there was "something wrong" because his heart abruptly started to beat unusually fast. He left the game of his own volition; on reaching the sidelines he slumped to the floor. He was motionless, and remained unconscious for ten to fifteen minutes. When he aroused, he was assisted to the showers. The pounding of the heart continued for an additional ten to fifteen minutes, then suddenly and spontaneously returned to its usual rate.

A review of each subsequent episode then disclosed that rapid heart action and exertion or excitement were consistently present. At no time had there been loss of sphincteric control, an aura or an observed convulsive movement. No attacks had occurred during sleep. Injury had been limited to a laceration of the scalp received at the time of the initial attack when the patient had fallen on the cinders of the track. Readings of blood pressure had been taken during attacks, but they were not available.

On several occasions rapid heart action, characterized by a precipitous onset and sudden return to normal, lasting three minutes to three hours, had occurred without syncope. An occasional attack had been accompanied by a dull aching sensation in the left part of the thorax, without extension. During one attack the patient's local physician had been unable to terminate the attack by "neck or eyeball" pressure. An electrocardiogram made at the time of the attack was interpreted as show-

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ing "the lower half of the heart beating twice as fast as the upper half." We did not witness an attack, nor were we fortunate enough to get an electrocardiogram during a period of rapid heart action. No other significant symptoms were elicited.

Examination revealed a husky, muscular, 6-foot, 177-pound youth in no apparent distress. The blood pressure was 114, systolic, and 80, diastolic, expressed in millimeters of mercury. The heart was not enlarged. No murmurs were heard. An occasional premature contraction was noted. Results of funduscopic examination and examination of the gross visual fields were normal. A neurologic examination did not reveal significant abnormalities.

Leukocytes numbered 6,800 per cubic millimeter of blood. The value for hemoglobin was 13.7 gm. per 100 c.c. of blood. Serologic tests gave negative results for syphilis. Urinalysis disclosed nothing significant. A roentgenogram of the thorax revealed the size and contour of the heart to be normal. An electrocardiogram showed a rate of 56, sinus arrhythmia with an occasional ventricular premature contraction, low amplitude QRS waves in leads I, II and III, inverted T waves in leads III, V-1 and V-3 and positive T waves in lead V-5. The pattern of the electro-encephalogram was essentially normal, with a regular and well-defined alpha rhythm of 10 cycles per second. There was no change with hyperventilation.

The patient was dismissed from our care on July 11, 1949, and advised to take 3 grains of quinidine four times a day. He was re-examined seven months later, on February 8, 1950. He had taken quinidine for four months, but had had none for three months prior to the last examination. At this time he complained chiefly of exhaustion, that his heart beat hard when he worked and that it was difficult for him to take a deep breath. He had had no episodes of fast heart or of unconsciousness since the first admission. We felt that his complaints at the time of his last admission were largely due to an anxiety state.

Summary

A case of syncope with attacks of prolonged unconsciousness, in which the heart was normal, has been presented. The clinical history and course were consistent with a diagnosis of paroxysmal tachycardia. The relative infrequency of occurrence of this manifestation of paroxysmal rapid heart action is of interest.

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PHYSICIANS' OBLIGATION TO REDUCE COSTS

A tangible service to patients is within the control of many physicians; namely, lowered costs for laboratory work. Says the President of New York County Medical Society, in part:[1]

> Many a patient finds that his total bill for an illness may involve a very considerable charge for a battery of tests performed to accumulate a voluminous mass of diagnostic data. The new trend, too, is to have the patient undergo an entire "checkup" in diagnostic centers—even when critical illness is not at hand—as a measure of preventive medicine. This, again, is as it should be. Yet, again, there is no doubt that such a comprehensive series of laboratory procedures all adds to the price paid by someone for medical care . . . by the public, by health agencies, by the hospitals, or by the private patients.
>
> Without trying to fly against the advancing winds of medical progress, one may reasonably ask for a bit of reflection on the blanket orders sometimes issued for laboratory tests which—on second thought—promise to aid the diagnostician only slightly, which may sometimes by their very abundance confuse the issue, and which always increase the cost of illness for the patient.
>
> There is an understandable emphasis on elaborate clinical diagnostic procedures among younger physicians—fresh perhaps from a residency in a major university teaching hospital where they had only to lift a finger to have harassed technicians turn out the work. That was part of their postgraduate medical education and gave them the training and experience they will need later. Moreover, this reliance on the objective information thus available is a desirable thing . . . as information.
>
> But diagnosis is a mixture of information plus judgment. As these younger physicians come to work with their own patients in their private practice, they gradually learn that a second and a third look at the patient and their experience in physical diagnosis will often reap rewards in attaining the correct decision without confusing the issue with a host of laboratory data and at a considerable saving in cost to their patients. Never forget that the cost of medical care is a major issue of medicine today.
>
> One must add, immediately, that laboratory work, if it is truly needed, must never be sacrificed merely on the basis of cost. Admittedly, too, the margin between enough laboratory work and an overabundance is sometimes a narrow one. Nevertheless, for those who err on the side of ordering too much laboratory work it is well to remember that the world had good diagnosticians before they were born.[2]

While no one contends that the patient's financial interest is paramount, it is a definite and, we believe, a growing, obligation of the physician to assist in cutting costs in his patient's behalf wherever possible. This cannot be emphasized too often. Excessive fees and indiscriminate prescribing of expensive drugs, as well as unnecessary laboratory procedures, open the profession to justifiable criticism. There is, as Dr. Keating remarks, an art and science to the practice of medicine. The best over-all care of the patient—medically and economically—is the proper blending of the two.

Anything which physicians can do to help lower the cost to the patient without sacrificing the quality of medical care is most meritorious. Sensible planning in the numbers and types of diagnostic tests to be ordered for the patient is one starting place to achieve this end.—Editorial, *N. Y. State J. Med.,* July 1, 1950.

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[1] *New York Medicine,* April 5, 1950, p. 22.

[2] 106:315 (April) 1950.

History of Medicine In Minnesota

MEDICINE AND ITS PRACTITIONERS IN OLMSTED COUNTY PRIOR TO 1900

NORA A. GUTHREY

Rochester, Minnesota

(Continued from June issue)

Elisha Wild Cross (continued)

His professional record was without blemish. Well educated, a student and traveler at home and abroad in the interest of professional improvement, he faithfully and generously gave his best in the nearly thirty years of his practice in Olmsted County. He held the affection of children and grown persons alike, and to his patients he was as much friend and temporal adviser as physician. He was a preceptor of medical students, medical examiner for fraternal lodges, and often a county physician. He served on the city board of health, for several terms as health officer, and in 1887 was a member of the Minnesota State Board of Health.

A founder of the early Olmsted County Medical Society, in 1868, he was in that year vice president, head of the committee on surgery and, with his brother and other members, a drafter of the first fee bill; when the society was reorganized in December, 1885, he was a charter member. Enrolled in the Minnesota State Medical Society from February 1, 1869, he was an active worker, several times a delegate to annual meetings of the American Medical Association. Under the "Diploma Law" of 1883 of Minnesota he held certificate No. 674 (R), dated December 31, 1883.

A progressing nervous disability that dated from the rigors of military service was aggravated by the demands of pioneer practice and in 1894 resulted in invalidism. A fall in January, 1899, while Dr. Cross was walking in his rooms, hastened his death, which occurred on the following November 21. At the funeral services the pallbearers were Dr. Cross's friends of many years: Drs. F. R. Mosse, H. H. Witherstine and Christopher Graham, of Rochester, and Dr. E. D. Stoddard, then of Stewartville, who had been one of his students. Special tribute to the memory of Major Cross was paid by Colonel John B. Sanborn, of the Fourth Minnesota Regiment: "One of the best of men and most faithful of officers"; and by the Loyal Legion, Commandery of Minnesota. Tribute to him as citizen, businessman and physician was paid by the Olmsted County Medical Society; the memorial, drafted by Drs. Witherstine, W. J. Mayo, and F. J. Halloran (of Chatfield), ended, "He was a good man. As such he will live in our memories."

Elisha Wild Cross was survived by his wife, Martha Peckett Cross, and by a son and a daughter. Mrs. Cross was a woman of culture and intelligence; she was a founder of the Rochester City Library in the sixties and until her retirement, in 1903, when her daughter succeeded her, she was a member of the board of directors; she died on February 19, 1907. The son, Maitland E. Cross, engaged in business in Rochester and later in Minneapolis; he was married in July, 1885, to Elva C. Daniels, of Rochester. Martha Helen Cross, the daughter, a graduate of Vassar College, was married on December 21, 1880, to Henry M. Nowell, a banker of Rochester, and spent her life in this city. She died on April 27, 1941, survived by a son, Reuben Nowell, of Rochester, and a daughter, Kate Theodate (Mrs. George Chute) Reid, of Rome, New York. The late Dr. G. C. Reid was from 1905 to 1908 a surgical assistant in what was soon to be known as the Mayo Clinic. The children of Dr. and Mrs. Reid are (1946) Dr. Henry Nowell Reid, a surgeon of Rome, New York, and Louise Reid Smith, of Gorham, Maine.

John Albert Grosvenor Cross (1870-1928) the sixth and youngest child of Dr. and Mrs. Edwin Childs Cross, was born in Rochester, Minnesota, on May 8, 1870, and there spent his youth and the first seven years of his professional career. His early education he acquired in the grade schools, high school and Niles Academy in Rochester; the degree of bachelor of science he received from the University of Minnesota in 1892 and, honor student and second in his class, the degrees of master of science and doctor of medicine from Northwestern University in June, 1895. One of four graduates appointed on the basis of scholarship to internship at Mercy Hospital, Chicago, under Dr. Frank Billings, he refused the opportunity because of his mother's failing health, and returned to Rochester, accompanied by his wife, to begin general medical practice. He was married on September 4, 1894, to Frances Montgomery; Mrs. Cross was a native of St. Cloud, Minnesota, a graduate of the University of Minnesota in 1891 with the degree of master of science, and previous to her marriage was a teacher and a supervisor of primary instruction in the schools of Saint Paul.

Dr. Cross became a member of the Olmsted County Medical Society in 1895, was secretary and treasurer in 1896-1900, and president in 1902. In 1897 he was enrolled in the Minnesota State Medical Society and in 1898 in the Southern Minnesota Medical Association.

An outstanding feature of his seven years as a physician in Olmsted County was his study and clinical application of the x-rays, which were announced to the world by Roentgen in 1895. The first physician in Rochester to give serious attention to the discovery, by the early summer of 1896 Dr. Cross had assembled a workable "apparatus for using x-rays in photography"; his first successful picture, which had wide publication, was of his wife's hand; Mrs. Cross sat for three hours while the picture was made. At the August, 1896, meeting of the Southern Minnesota Medical Association he gave a showing of x-ray pictures in diagnosis. His new science repeatedly was put to clinical use by local surgeons to determine skeletal defects and to locate foreign bodies. Taken with his sound professional knowledge and personal integrity, his initiative and ability in roentgenography attracted attention in the Northwest and brought him due recognition.

In October, 1902, relinquishing his practice to Dr. John E. Crewe, who had been his partner since May of that year, Dr. Cross left Rochester with his family for Europe, where he spent a year, studying in many different cities but chiefly in Vienna with Edmund von Neusser. On his return to Minnesota he began his career as an internist in Minneapolis. The detailed story of his subsequent work belongs to the history of medicine in Hennepin County.

Dr. Cross was a cultured gentleman of personal charm, sympathy and warm sense of humor, a musician and student, a member of the Episcopal Church. He was a skilled physician, a sound writer on medical subjects, a worker for medical education and organization and the elevation of medical ideals and standards. For several years he was on the teaching staff of the medical school of the University of Minnesota; long on the clinical staff of four hospitals, Northwestern, Hillcrest, Abbott and St. Mary's, some time with St. Barnabas Hospital, and chief of the medical staff of the City Hospital. He was a member of the college fraternities Chi Psi and Nu Sigma Nu (medical) and of many medical societies, county, state, national and special.

John Grosvenor Cross died on March 3, 1928, at the age of fifty-seven years, from a cerebral hemorrhage brought on by an automobile accident, and was survived by his wife, a daughter and two sons. In 1946 Mrs. Cross and Miss Louise Cross, the latter a sculptor, medical illustrator and writer, were living in New York. Grosvenor Montgomery Cross, a mechanical engineer, was in New York and Connecticut, in work that took him into Latin America; Roderic Marcy Cross, an engineer, was in Torrington, Connecticut, a member of the board of directors of Torrington Manufacturing Company; during World War II both sons were engaged in defense work. Mrs. J. G. Cross died in New York on February 20, 1949. She was survived by the three children and by nine grandchildren, six girls and three boys, of whom one was John Grosvenor Cross.

Nathaniel (commonly **Nathan**) **S. Culver,** a small, energetic man, who was born in Rock County, Wisconsin, about 1843, came to Minnesota in 1866 and to Rochester in early 1867. His first announcement, published in the *Rochester Post* of June 15, 1867, served to introduce him:

> Dr. N. S. Culver, Eclectic Physician. Office: Broadway, opposite Heaney's Brick Block. Special attention given to Chronic Diseases, such as rheumatism, liver complaint, throat diseases, dyspepsia, bronchitis, diabetes, diseased kidneys, scrofula, weak spines, asthma, loss of voice, and nervous debility.
>
> Mild medicinal remedies will be used, and each patient will be insured the proper treatment, whether by Magnetism, Electricity, or Eclectic Medicine.
>
> Tape worms successfully removed. A cure warranted.
>
> Patients at a distance can send for circular and copy of "Questions to Invalids." References: Dr. A. Castleman, Milwaukee; Dr. R. W. Hathaway, Milwaukee; Dr. N. G. Storrs, Milwaukee; E. G. Crandall, Esq., W. S. Alexander, Esq.

In September, 1868, Mr. J. D. Blood, an established druggist of Rochester, took Dr. Culver into partnership in the Union Drugstore on Broadway. After Mr. Blood's death in 1870 Dr. Culver carried on the expanded drugstore with great success, first alone, and later with his brothers George and John. He traveled considerably and often brought back objects of interest, which he exhibited in the drugstore; on his return from a clinical visit to Chicago in November, 1871, he displayed a collection of curious specimens of fused metal and glass from the ashes of the Great Fire. Dr. Culver's drugstore, incidentally, was one of the pharmacies in Rochester in which Henry W. Wellcome (later Sir Henry, of London, England) worked for a time as a clerk. An elderly lady of Rochester, then a young girl, has said of Henry Wellcome, "I didn't know the word *personality* then, but he had personality if any one ever did."

Dr. Culver was among the eclectic practitioners who met in Owatonna on May 26 and 27, 1869, to organize the Minnesota State Eclectic Medical Society; he was elected recording secretary and at the next annual meeting, in June, 1870, also at Owatonna, he was re-elected. Although Dr. Culver thus furthered eclectic medicine, and made trips to Chicago and Philadelphia to attend medical lectures for the improvement of his knowledge, it is believable that his undoubted success and popularity were due as much to his personal traits and his activities as business man, church worker and ardent exponent of temperance, as to his skill as a physician.

Nathaniel S. Culver was married on May 19, 1870, to Mattie A. Nicholson, only daughter of B. Nicholson, of Watertown, Wisconsin, and brought his wife and his father-in-law to a new home at the corner of Grove and Third Streets. Mr. Nicholson died in April, 1871; Mrs. Culver died in August, 1872, at the age of twenty-nine years, leaving an infant son. In the winter of 1873-1874 Dr. Culver because of his own failing health and the child's illness, sought the salubrious climate of Colorado, which had begun to attract popular attention, in company with other citizens of Rochester.

By October, 1874, he was established in Colorado Springs, although he continued for some years to own his drugstore in Rochester, and thereafter for seventeen years, during which he made periodic visits in Rochester, reports came back of his multiple interests and his prosperity. He discovered fire opals near Colorado Springs; struck a bonanza gold vein, the Ute Pass Lode, at Manitou; organized a stock company for silver mining. In 1875 he presented to the Rochester High School a large collection of mineralogic and geologic specimens that he had gathered in Colorado and had exhibited in the Union Drugstore in Rochester. In 1876 he was candidate for alderman on the temperance ticket; in 1878 he was elected state treasurer of Colorado.

On January 30, 1891, the *Rochester Post* made the following announcement: "Dr. Nathaniel S. Culver, at one time a resident of this city, died recently at Colorado Springs, Colorado, aged forty-eight years. His business in that state was that of mining director. For some years he was one of the directors of the First National Bank of that city and was president of the First Congregational Church of Colorado Springs."

Eugene C. Davis, son of Mr. and Mrs. Ezra Davis, of Viola Township, Olmsted County, and at one time a medical student under Dr. Hector Galloway, of Rochester, returned home from New York City in March, 1876, a qualified doctor of medicine. After practicing in the community of Viola a few weeks, he rented his farm (*Rochester Post,* April 15, 1876) and removed to the village of Plainview, Wabasha County, to enter partnership with Dr. Nathaniel S. Tefft, a highly respected pioneer physician.

Dr. Davis was married on January 2, 1881, to Miss Mattie Champine, daughter of Mr. and Mrs. C. Champine, of Plainview.

The career of this young physician was cut short by his untimely death, in Plainview, from typhoid fever on November 27, 1881.

A **Dr. Davis,** of Rochester, in April, 1885, cut a cancer from the lip of a citizen of Marion. "It was a neat job and left a little of the lip." Other than this item, information about this Dr. Davis is lacking.

Paul G. Denninger (1848-1927), a homeopathic physician, practiced medicine in various localities of southern Minnesota between 1870 and 1890. Eckman mentioned him, in 1941, in an article on homeopathic and eclectic medicine in Minnesota. A sketch of this practitioner appeared in an article on the history of medicine in Fillmore County (Guthrey).

A native of Germany, born in 1848, Paul G. Denninger in 1862 came with his parents to the United States. In 1870, twenty-two years old and a physician, he arrived in Minnesota, and in Eyota, Olmsted County, began the practice of medicine, succeeding Dr. Benjamin F. La Rue. His office first was in the building of C. S. Andrews, later over the Wagner shoe store, and finally in his residence on the corner of Fourth and Lafayette Streets, opposite the Presbyterian Church.

In Eyota Dr. Denninger was married on June 12, 1871, to Susie A. Wagner, of Eyota, daughter of the local shoe merchant. In 1876 he removed to Spring Valley to enter partnership with his brother-in-law, Dr. C. H. Wagner. After a few years in Fillmore County during which he took a degree, in 1879, at the Hahnemann Medical College and Hospital of Chicago, he settled in Faribault about 1881. From Faribault he removed to California in 1890 and there practiced successfully at various places; he died in San Jose on December 10, 1927.

William M. Dodd (1853-1883), of brief professional career, was born in Cortland County, New York, on December 20, 1853, the eldest of the three children of Isaac Dodd and Margaret Johnston Dodd. Both Isaac Dodd and his wife were natives of Cumberland County, England, who came to the United States in their youth; they were married in Elgin, Illinois, later farmed in Cortland County, New York, where Isaac Dodd first had settled, in 1849. In the spring of 1855, members of a group of travelers seeking new homes, they arrived in southern Minnesota and opened a farm in section 23, Kalmar Township, Olmsted County. Margaret Dodd died in 1858, and in 1862 Isaac Dodd was married to Helen Ranson, a relative of the Ranson family of Dodge County, three members of which have been well known in Minnesota medicine. Of this second marriage there were ten children, of whom four were living in 1883.

William Dodd, after attending the district school near his home, studied academic branches at Niles Academy in Rochester and medicine under Dr. Hector Galloway of that city, preliminary to a formal medical course. In March, 1880, he returned home, a qualified graduate of the Chicago Medical College, and for the next three months practiced medicine in Byron, as locum tenens for Dr. Isaac Hall Orcutt, who was taking a postgraduate medical course at the University of Pennsylvania. From Byron Dr. Dodd went to Austin and soon after to Brownsdale, also in Mower County, where he practiced until his health failed: an attack of lung fever in August, 1882, was followed by tuberculosis. In January, 1883, with his wife, Nona Hitchcock Dodd, to whom he had been married at Milan, Minnesota, in July, 1880, he went to Napa City, California, the home of Mrs. Dodd's parents, seeking a beneficial climate. The only child of the young couple, a little boy, died en route. Dr. Dodd's death occurred at Napa City on April 20, 1883.

William Doms (1858-1928), who was born on July 15, 1858, and who held an exemption certificate to practice medicine in Minnesota under the medical practice act of 1887, died in Woodstock, Minnesota, on July 21, 1928, after a residence there of twenty-six years. A note has appeared that he was married on March 19, 1879, to Anna Ingle, of Rochester, Olmsted County, and that in the following October he removed to Pipestone.

Rollo Carlton Dugan (1865-1927), a son of Elijah S. Dugan and Calista Griffis Dugan, was born in Eyota Township, Olmsted County, on February

12, 1865. Elijah Dugan was a native of Ohio, Calista Griffis, of New York. After their marriage Mr. and Mrs. Dugan in 1857 went to Stark County, Illinois, where their two elder sons, Nathan F. and Charles, were born. In 1862 the family came to Minnesota and settled on a farm near Eyota. At one time Mr. Dugan operated a traveling merchandise van; in the seventies this rig, an enclosed vehicle drawn by a pair of sturdy roan ponies with black manes and tails, was a familiar and welcome sight to farm families in various parts of the county. Mr. Dugan and his wife in their last years made their home at Compton, California.

Rollo C. Dugan went to district and village schools of Eyota Township, to high school in Rochester, and to the University of Minnesota. He took his degree of doctor of medicine in 1890 and returned to his native locality, with his headquarters in Dover, to begin a general medical and surgical practice. In near-by Eyota, from 1873 to 1892, Dr. Augustus W. Stinchfield with distinguished success carried on a practice that was for those years unusual in size and scope. When, in February, 1892, he removed to Rochester on the invitation of the Drs. Mayo to join their group, young Dr. Dugan transferred to Eyota, to take the older doctor's practice and to carry on in his tradition. At the same time Dr. Dugan held his practice in Dover, avowedly for the benefit of his undergraduate friend, Melvin S. Millet (M.D., University of Minnesota, 1895), whom he encouraged and coached in the study of medicine.

On February 20, 1892, Rollo C. Dugan was married at Dover to Isabelle Styles, daughter of William and Elizabeth Styles, pioneer settlers in Dover Township. Mrs. Dugan's sister Agnes was Mrs. Nathan F. Dugan; a second sister, Miss Lucy Styles, a trained nurse, was Dr. Dugan's personal assistant for more than thirty years. Dr. and Mrs. Dugan had four children: Rollo C., Jr., Catherine, Nathan Clay, and Melvin Millet.

Well-qualified, well-liked, ethical and progressive, with a bent for surgery, Dr. Dugan became an outstanding member of Olmsted County's medical profession. He was of medium height, heavy, possessed a keen sense of humor and a notably guarded tongue. When he started practice, it was said locally that he would not be a success because he would not talk; when unduly pressed for information about a case, his defense mechanism was to mutter amiably and indistinctly, edging the while to the door and, apparently about to make a decisive statement, make his escape. It is recalled by his relatives that Dr. Dugan spent as many mornings as possible each week in Rochester observing and studying the work of his friends Drs. W. J. and C. H. Mayo at St. Mary's Hospital; he always said that he learned surgery from the Drs. Mayo. By 1896 Dr. Dugan had equipped part of the old Dugan home in Eyota, which was his residence and office, as a small surgical hospital, although it was not until October, 1900, that he increased its capacity to eight beds and called it the Eyota Hospital.

Dr. Dugan was a member of the Olmsted County Medical Society, the Southern Minnesota Medical Association, the Minnesota State Medical Society, the American Medical Association, and other professional groups, among them the American Association of Railway Surgeons. He took an active part in the work of all, serving on committees and contributing scientific papers on a wide range of subjects. Concerning one paper an incident, still cited, occurred at a meeting of the American Medical Association, when Dr. Dugan was to make his first appearance before the surgical section of that assembly: Dr. W. J. Mayo was chairman of the section, Dr. Dugan was on the program for one o'clock, Dr. Mayo had introduced him and he was starting to read, when there was a rush at the door and a murmur through the hall that Dr. ...., a famous surgeon of Chicago, listed on the program much later, was here, wished to read his paper now, could not wait. Dr. Dugan, paper in hand, was much embarrassed and turned to leave the platform as the Chicago surgeon walked confidently forward amid enthusiastic applause. Dr. Mayo quietly announced once more that Dr. Rollo C. Dugan, of Eyota, Minnesota, would now give his paper, and the country surgeon gave it.

Dr. Dugan was health officer and county physician, postmaster at Eyota from 1903 to 1904, and was active in civic and social organizations. He was a Republican, a member of high standing in Masonry in St. Charles and Winona lodges. He drove fine horses, was a member and founder of the Eyota Driving Park Association, enjoyed fishing, was a good shot and annually went hunting in the years when prairie chickens were plentiful in Minnesota and the Dakotas.

In 1913 Dr. Dugan and Dr. Dorr F. Hallenbeck, then of Goodhue, planned to enter partnership for practice in Nebraska, and Dr. Dugan was to be replaced in Eyota by Dr. Fred L. Smith, then of Chatfield (since 1917 Dr. Smith has been with the Mayo Clinic in Rochester). Because of unavoidable delay in arrangements, Dr. Dugan urged Dr. Hallenbeck to take an opportunity that offered with the Drs. Mayo at Rochester. He himself was in Valentine, Nebraska, briefly, later was a few months in Winona. In 1914, "after making a success of a surgical hospital for eighteen years in a town of less than 500 inhabitants" (Eyota), he settled in Ottawa, Kansas, where he spent the remaining thirteen years of his life in active surgical practice, the greater part of that period with the Ransom Memorial Hospital. He was a member of the Franklin County Medical Society and the Kansas State Medical Society and continued to be a worker for civic improvement.

Rollo Carlton Dugan died at Ottawa, Kansas, on June 10, 1927, aged sixty-two years, from carcinoma of the jaw and throat, survived by his wife, four children, several grandchildren, and nieces and nephews. The one daughter died some years later. In 1945 Mrs. Dugan and her son Melvin Millet Dugan, a chemist, were in Chicago; Nathan Clay Dugan was in Wichita, Kansas; and Rollo C. Dugan, in Fort Wayne, Indiana. A nephew, William J. Dugan, was a resident of Rochester, Minnesota.

M. N. Dyer, aged forty years, died in Rochester, Minnesota, on April 18, 1863. The *Rochester City Post* of May commented as follows: "Dr. Dyer was a physician of large practice and great skill and during his brief residence in this city he had won by his generous impulses and warm heart a large circle of friends."

(To be continued in the August issue)

President's Letter

NO AGENDA OF PROMISES

Totalitarianism, it has been said, begins with promises, ends with control. The American people have been looking closely at this historical truth during the last several years, as promises of security have beckoned them down the path to government control.

Dominant have been the promises of universal medical care, promises which apparently entail no thought or effort on the part of the recipients in making them reality.

The American Medical Association, meeting in annual session at San Francisco, made no promises, offered no effortless solution to the problems that remain in the field of medical care and those that will emerge with the shiftings of economic, sociologic and political developments. But in seventy-four definitive and aggressive actions, American medicine offered the public an opportunity to work with the profession in raising even higher the standards and application of medical science. Medicine demonstrated again its acceptance of the responsibilities of leadership contingent upon the practice of this profession.

This recently concluded meeting of the nation's physicians has been an historic one, particularly from the standpoint of public interest and participation. As Dr. Elmer Henderson, AMA's new president, said June 27:

> "There is a vital reason for this new policy. Our affairs are no longer just medical affairs. They have become of compelling concern to all the people.
>
> "American medicine has become the blazing focal point in a fundamental struggle which may determine whether America remains free, or whether we are to become a Socialist State, under the yoke of a government bureaucracy, dominated by selfish, cynical men who believe the American people are no longer competent to care for themselves."

We have taken the public into our confidence, setting forth our ideals, our objectives, the methods we feel to be most effective, as well as most analagous to the traditional freedom-respecting and evolutionary action that has characterized this nation and made it unique in progress and strength.

The results of combined medical thinking at the AMA meeting are of profound importance, and every physician should familiarize himself with the policies which have been developed so that these policies will culminate in early, unified action.

F. J. Elias.

President, Minnesota State Medical Association

Editorial

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

STATE OFFICERS ELECTED

At the annual meeting of the Minnesota State Medical Association, convened at Duluth June 12, 1950, the following officers for 1951 were elected by the House of Delegates:

President-Elect—Dr. J. F. Norman, Crookston.

First Vice-President—Dr. Willard White, Minneapolis.

Second Vice-President—Dr. A. E. Brown, Rochester.

Secretary (reelected)—Dr. B. B. Souster, Saint Paul.

Treasurer (reelected)—Dr. W. H. Condit, Minneapolis.

Speaker of House of Delegates(reelected)—Dr. C. G. Sheppard, Hutchinson.

Vice-Speaker of House of Delegates (reelected)—Dr. Haddon Carryer, Rochester.

Dr. John Francis Norman, the newly chosen president-elect is a native of Minnesota and received his medical degree from Hamline Medical College in 1907. He has practiced surgery at Crookston since graduation and has been active in local and state medical affairs, having served on numerous state medical committees.

TERRAMYCIN

A NEW ANTIBIOTIC, terramycin, has been added to the list of agents used in the treatment of infectious diseases. Terramycin was isolated from cultures of Streptomyces rimosus and first reported by Finlay and his colleagues in January of this year. Its name was derived from the fact that the growth presented a cracked appearance on the surface of the agar medium. Terramycin is a yellow crystalline amphoteric substance which is highly stable in the dry form. It was established that this antibiotic possesses antimicrobial activity against a wide range of pathogenic organisms, and at the same time a low degree of toxicity in laboratory animals was demonstrated. In March, Hobly and co-workers published reports containing more detailed information concerning the antimicrobial activity of this drug. It was found to be effective against a wide variety of aërobic and anaërobic Gram-negative and Gram-positive bacteria and certain of the rickettsiae. The observation that this substance possesses an extremely low degree of toxicity was again affirmed. Extensive studies on absorption and excretion in animals reported at the same time indicated that terramycin is absorbed readily after either oral or parenteral administration and is excreted in a biologically active form. The first studies directed toward the use of terramycin in man were reported in April from the Mayo Clinic. It is apparent from this report that terramycin is readily absorbed after oral administration of 1 gm. and that rather constant blood levels are maintained for approximately six hours. After this six-hour period there is a gradual decline with minimal activity still demonstrable in some instances after twenty-four hours. The therapeutic adult dose was therefore established at 1 or 1.25 gm. administered orally every six hours.

Terramycin for intravenous use is under investigation at present. It was found that this antibiotic diffuses readily through the placenta into the fetal circulation and into the pleural fluid; however, unlike aureomycin, little or no terramycin crosses the barrier between the blood and the brain.

Large quantities of terramycin are excreted in the urine. Smaller but significant amounts appear in the bile. When administered by the oral route large amounts are not absorbed but are excreted in the feces.

Clinical experience based on the report by Herrell and co-workers and on recent reports in the *Journal of the American Medical Association* indicate that this antibiotic is therapeutically effective in a wide variety of infectious diseases. In this respect its action is similar to that of aureomycin. It is apparent, however, that although these drugs are similar in many respects there are significant differences. Many of the common infections of the upper part of the respiratory tract including septic sore throat, acute follicular tonsillitis and acute laryngotracheitis have responded to its use. Terramycin is extremely efficient in the treatment of the bacterial pneumonias, and the results in whooping cough are promising. Infections of the urinary tract due to susceptible organisms are rapidly brought under control; these organisms to date include Escherichia coli and Aerobacter aerogenes. Undoubtedly, with further clinical experience more of the bacteria causing infections of the urinary tract will be added to the list of those already mentioned as being effective. Similarly, pyelonephritis responds in a satisfactory manner to the action of this drug. Septicemia owing to Escherichia coli and bacteroides has been treated with excellent results. Terramycin produced no demonstrable effect in one case of herpes zoster. It is certain that as clinical experience with this new antibiotic widens it will be found that its therapeutic range of activity is much greater than indicated above.

Terramycin is a relatively nontoxic substance. This statement is supported by the fact that to date the only toxic reaction ascribed to its use is occasional gastrointestinal irritation manifested by nausea and, on occasion, vomiting. Usually these symptoms can be obviated by the simultaneous administration of milk. Furthermore, it has been established that milk does not interfere with the absorption of this drug.

W. E. Wellman, M.D.

CLOAKING OF SIGNS AND SYMPTOMS BY CORTISONE AND ACTH ADMINISTRATION

THE wonder drugs, Cortisone and ACTH, are finding a limited place in therapy. There is accumulating evidence that the acute reaction to rheumatic fever may be limited in extent of invasion and distortion (valves of the heart or its musculature); and the obvious allergic reactions of hay fever are held in abeyance while the season passes over. No one, so far, has indicated clearly whether this withholding of the symptoms and signs of such definite entities as rheumatic fever has any limiting influence upon their natural course, or the development of natural remissions and immunity. Whatever these sequences are that restore body balances and constants in the sense of Walter B. Cannon's homeostasis, the supposition has been that this interaction of attacking agent (whatever type) and the mechanisms of bodily resistance (fever, leukocytosis, connective tissue reaction and healing) represents on the whole a salutary conflict.

Now come reports from various sources, conspicuously from McGill University,* Montreal, Canada, presenting some unlooked-for side-effects in terms of the masking of common disease entities and the possible inhibition of healing due to faulty collagenous tissue activity. Two instances of diffuse peritonitis developed while the patients were under treatment with ACTH. The first was an instance of Hodgkin's lymphoma where an upper respiratory infection developed into a questionable pneumonia of the right lower and middle lobes. While the patient's symptoms and reactions were mild, nevertheless at post-mortem a "heavy growth of pneumococci" was cultured from the blood of the heart and the fluid in the peritoneum was part of a diffuse peritonitis. In another instance, a patient under treatment with ACTH for severe asthma suffered a vague abdominal attack where it was found that an ulcer of the duodenum had perforated.

Such experiences may call for extra watchfulness in the exhibition of Cortisone and ACTH. Indeed, our entire concept of nosology may need revamping. When the symptoms of pneumonia abate meanwhile systemic bacteremia develops; and when there is a response to conditions as different as is Addisonian anemia (responding in an exacerbation quite as definitely as does the rheumatoid arthritic), it would appear that these novel agents need the closest checking, not only when used therapeutically but in investigative research.

E. L. Tuohy, M.D.

A ROSE BY ANY OTHER NAME

IN AN EDITORIAL entitled "Defeat of Reorganization Plan No. 1," which appeared in our September, 1949, issue, we explained how Plan No. 1 was defeated by vote of the Senate on August 16, 1949, largely, we believe, as a result of what amounted to a pilgrimage to Washington by representatives of the State Medical Associations throughout the nation. Plan No. 1 provided for the establishment of a Welfare Department in our Federal Government to be headed by a layman and to include social security, education and most health activities of the Federal Government. The medical profession has been adocating for years a separate Federal Department ncompassing the health activities of the Federal overnment with a medical man in charge as a ember of the Cabinet. We believe that the ealth activities of the Federal Government affect nough people and are important enough to arrant such treatment as recommended by the ask Force of the Hoover Commission. We elieve that to include health activities with social ecurity and education at present with the idea of ater effecting a separation is not likely to be ccomplished, and the profession does not want a ayman and someone who is so obviously a ocialist, like Oscar Ewing, to handle governnental health activities.

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*Beck, J. S., et al: Canadian M. As. J., 62:423, (May) 1950.

In spite of the opposition of the medical proession—so forcibly expressed in Washington ast August—the President has submitted his eorganization Plan No. 27 to Congress which is ubstantially the same as last year's Reorganizaion Plan No. 1 and, as a matter of fact, the ame as S. 140 in the 80th Congress. Does the President think the profession has changed its nind, or does he expect to wear us down until we are ready to cry quits? This matter of legisation was important enough last summer to warrant a special trip to Washington of repreentatives from the State Medical Associations to nake our ideas known. Such action is expensive, out if need be will undoubtedly be repeated.

* * *

As we go to press, the announcement comes that the House, on July 10, vetoed President Truman's proposal for a new Department of Health, Education and Security by the overwhelming vote of 249 to 71. On the same date, the Senate executive expenditures committee voted 6 to 3 to reject the new department and was set to kill the bill on July 12. It will not be necessary now for the Senate to take action. It remains to be seen whether this demonstration of opposition to President Truman's plan which was the same as that defeated last August under another name will prevent future attempts to cram this undesirable legislation down the throats of the people contrary to the recommendation of the Hoover Commission and the advice of the medical profession.

It should be noted that Representatives McCarthy and Blatnik voted for the proposal and Representatives Andersen, Andresen, Hagen, Judd and O'Hara were opposed.

GENERAL PRACTICE AND GP

GENERAL practitioners outnumber specialists two to one and constitute the backbone of the profession. It merits repetition and emphasis that the challenge of general practice from the standpoint of service to humanity and professional interest, though less spectacular, is fully as appealing as that of specialization. The impossibility of acquiring and keeping up with the mass of medical knowledge already recorded and published yearly has necessitated specialization. Only the most talented and industrious specialist can hope to keep up with the literature in his limited field. The general practitioner must be a voracious reader, indeed, and be able to pick and choose and digest the medical literature available and suited to his needs in order to keep pace with medical progress. This requires an intelligence of no mean caliber.

The general practitioner, especially if he be located in a rural district, probably has the opportunity of knowing his patients better and for longer periods of time than can the specialist. Knowing more of a patient's home environment, habits, and peculiarities is a distinct advantage to the patient and his physician in gauging the significance of early symptoms. Such knowledge has not infrequently warded off unnecessary treatment, both surgical and medical.

In recent years, definite steps have been taken not only to recognize the importance of the place of the general practitioner in providing medical care but in raising their quality. Special postgraduate training for those planning to take up general practice, refresher courses, the mid-winter AMA meeting devoted to the general practitioner, a general practice section in the AMA, and finally, the formation of the American Academy of General Practice devoted to the improvement of the general practitioner, may be mentioned.

The American Academy of General Practice held its second annual meeting at St. Louis in December, 1949. This meeting was attended by over 5,000 general practitioners who exhibited even more enthusiasm and earnestness than at the first meeting in 1948. For some time it has been felt that the Academy should publish its own journal devoted to the needs of the general practitioner. The first issue in attractive format appeared in April, 1950. Just as Volume I was ready to go to press, the editor, Dr. F. Kenneth Albrecht, died suddenly as a result of an automobile accident. This tragic ending of a talented man in his prime before he could see the results of his last labor was particularly distressing. By an especially good stroke of fortune, the services of Dr. Walter C. Alvarez, well-known gastroenterologist and writer, a member of the Mayo Clinic for the past twenty-four years and editor with distinction of *Gastroenterology* and *The American Journal of Digestive Diseases* were obtained. He has moved to Chicago and his name appears as editor in the June issue. The journal has a long list of eminent specialists on its Editorial Advisory Board and in the capacity of Managing Publisher, the able Mac F. Cahal. Dr. Stanley R. Truman of Oakland, California, is chairman of the Publication Committee as well as president of The Academy. The first articles to appear in GP are of high calibre, and the section on Practical Therapeutics is of very special value to the general practitioner. We extend our best wishes for the success of GP,* the launching of which, though beset with tragedy, has been nevertheless most auspicious.

THE AMERICAN JOURNAL OF PROCTOLOGY

The American Journal of Proctology made its debut in March of this year. It claims to be the first authoritative journal of proctology and allied subjects and is owned and published quarterly by the International Academy of Proctology, Inc., with editorial office at 43 Kissena Boulevard, Flushing, New York, and business office at 1819 Broadway, New York 23, New York. Subscription price is $2.50 per year. Members of the International Academy of Proctology receive the journal in return for the payment of membership dues.

As explained editorially in volume one of this new publication, the International Academy of Proctology was formed on June 9, 1948, to unite in one association, physicians who are interested in this specialty. The American Board of Proctology incorporated in 1935 has remained dormant ever since but was approved by the Council on Medical Specialties at a recent meeting. Thus this Board becomes the eighteenth Examining Board in the specialties. An organization meeting was held in conjunction with the American Medical Association meeting in Atlantic City in June, 1949. The Academy's first sceientific meeting also was held on this occasion and its second meeting was held at the Hotel Bellevue in San Francisco on June 23, 24, 1950.

The articles and abstracts appearing in the first number of this infant journal indicate the worthy purpose of the editors. MINNESOTA MEDICINE extends its best wishes for the growth and success of *The American Journal of Proctology.*

BE JUST BEFORE YOU ARE GENEROUS

The various communities of the State, ranging from hamlets to large cities, face a serious problem of financial drainage. It is a matter of great pride to self-respecting citizens to be able to assist in the maintenance and betterment of local charitable enterprises and institutions such as district nursing associations, the local hospitals, day nurseries or child care centers, for example, as well as various local religious institutions. Latterly, it seems to be more and more difficult to raise sufficient money to keep them going, even on a restricted basis, in spite of unremitting labor by interested citizens. What are the reasons for this difficulty?

High taxes for one thing, increased cost of living for another. Yet another is the multiplicity of organizations other than local whose appeals for aid siphon away small community resources. This is to state a fact and in no way to impugn the worthiness of these larger groups. Physicians will be interested both as citizens and doctors to know why financial support is increasingly hard to obtain for local hospitals, district nursing associations, and other aids to medical practice as well as community assets.

> A check by the National Information Bureau on national nonprofit organizations, nearly all of which solicit public aid, shows an astounding number in existence.
>
> There are, for example, no less than 75 national associations dealing with public health, ranging alphabetically from those concerned with Alcoholism through Hay Fever, Parenthood, Social Diseases, and Veterans.
>
> There are 24 national organizations dealing with the problems of Youth.
>
> There are 31 which are solicitous for continuance of "Free Enterprise" and the "American Way of Life" and the like.
>
> There are five which are anxious about the American Indian Welfare, 10 concerned with Conservation, 19 aroused over Civic Affairs, 29 which deal with International Relations, 23 interested in General Welfare, and no less than 72 seeking to help on matters connected with Foreign Relief Aid and Rehabilitation, with practically every other nation in the world on the receiving end of American charity.
>
> These are not fly-by-night organizations, mind you. Every one of the more than 400 organizations listed by the bureau is either national or international in scope.[1]

It has come to a point where drives for this and that have begun to overlap each other. It is a rare morning when the mail does not contain at least one and often two or three appeals from various sources. To the more than 400 organizations of national or international scope must be added those of less than national but not purely local character. There is, apparently, no limit.

In an expanding economy it is quite possible that all of these appeals can somehow be met, but it is to be kept in mind that the financial assistance asked is *in addition* to the steady, enormous drain through taxes to provide governmental subsidies to specially favored groups, either domestic or foreign. Matters would be much worse if any serious effort were to be made by government to reduce the national debt of some $1,700 for every man, woman, and child in the nation. It will have to be done sometime, somehow.

Meanwhile we hope that some thought will be given to a return to the time-proved maxim, "Be just before you're generous." Be sure your purely local institutions do not lack the financial assistance they merit.—Editorial N. Y. State J. Med., June 15, 1950.

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*Editorial and Business Office, Broadway at Thirty-fourth street, Kansas City 2, Missouri. Subscription price, $10.00 (to members, $5.00).

[1] Ossining Citizen Register, April 20, 1950.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

ENATOR McCLELLAN BLOWS AWAY THE FOG

Senator McClellan, who spoke at the second nnual Minnesota Medical Press conference in pril, recently reported to Congress on federal pending. His report is the subject of an editorial n the *Wall Street Journal,* which credits him with learing away some of the fog surrounding the overnment-stated reasons for increased federal xpenditures. The *Journal* says:

> "In recent weeks there have been repeated suggestions rom Administration officials at Washington that the reasury deficit is due to tax cuts made by the Re- ublican Congress in 1948. Also, there have been hints hat the fight against Communism accounts for rising overnment expenditures.
>
> "Now Senator McClellan of Arkansas comes along vith a report that blows away the fog that settled round the fiscal situation as a result of such suggestions. he Senator should know about such matters; he's chair- nan of the Senate Committee on Expenditures in the xecutive Department. And, of course, he's a Demo- rat, which removes any possibility that he's only having political tiff with the Administration."

Spending Increases in Four Categories

The Senator's report shows that in the coming fiscal year spending in four categories that can't possibly be related to fighting Communism, will ccount for a rise of more than $4 billion. The four categories are: social welfare, housing, farm price supports and public works. Spending for social welfare will be $845 million greater mostly due to grants to states for public assistance, public health and hospital construction. Spending for housing accounts for a $1,247 million increase. Spending for farm price supports and other aid-the-farmer efforts means an increase of $1,632 million. Spending for public works will rise $458 million due chiefly to river and harbor work.

The Journal "Heartily Agrees"

Seconding the report of Senator McClellan, and realizing where taxes go and why the government is involved so deeply in deficit spending, the Wall Street *Journal* concludes:

> "Those figures add up to $4,182 million. And that would about equal the deficit that's being incurred in the present fiscal year. When a Government is bent on spending money as fast as it can it's almost certain to find excuses for the red ink created. The tax cut of the 1948 Congress is an easy alibi; so is the anti-Communist effort. But the real truth of the fiscal situation is that spending is on the rise almost everywhere you look.
>
> "In submitting his report to the Senate, Mr. McClellan warned that 'this tremendous rising cost (of Government) is indicative of a fixed permanent trend that cannot be ignored or remain unchallenged.' And he added that this provides a 'warning of compelling force against our proceeding with reckless indifference to enact more and more laws expanding present governmental services and instigating new programs creating additional governmental obligations that will add billions annually to the already swollen costs of government.'
>
> "We heartily agree."

PURCHASING POWER NOW LESS THAN IN 1931

Due to taxes and inflationary prices, it was shown in a recent bulletin of Insurance Eoconomics Surveys, that although dollar salaries in 1950 are considerably greater than those of 1931, the purchasing power of 1950's salary is only a little more than half that of the salary of 1931.

Citing the news story of baseball player Ted Williams' recent signing with the Red Sox for a record pay of $125,000, the Survey compared his salary with that of Babe Ruth in 1931.

In a graphic presentation, the article showed that, while the salary of Babe Ruth in 1931 was only $80,000, his take-home pay amounted to more than Williams takes home today—Ruth $68,535, Williams, $62,028. This compares the two after taxes were removed. The Survey says:

> "Inflation has shrunk the buying power of the dollar since 1931, so Williams' real take-home pay is only a little over half of Ruth's—57 per cent. . . . If Ted Williams were to have as much buying power in 1950 as Babe Ruth had in 1931, he would have to be paid $327,451."

Thus, more facts help convince tax-burdened Americans that proposed government bills would increase taxes, thereby lowering take-home pay and lowering the buying power of American salaries.

DEWEY ADVISES AVOIDING NEVER-NEVER LAND

Governor Thomas E. Dewey, speaking recently at Princeton university, took a sober look at the situation causing some people to advocate adoption of compulsory government medicine, and charged that the administration is "making a strong political issue out of support of a compulsory national health bill."

"By this bill," Dewey said, "heavy additional payroll deductions or comparable taxes would be imposed on the entire population. Everyone would then get so-called 'free' medical, dental, surgical and hospital care, as in Great Britain. Mr. Truman says this is not socialized medicine. The British admit that it is. They ought to know."

Believing that not all is perfect in medicine, or in any field, Dewey declared that socialized medicine is not the way to remedy ills which are far less obvious than medical advances:

> "Of course, there are urgent problems still to be met in the field of medical care. There always will be. Many communities need hospitals. The cost of illness can often be disastrous to an individual family. Medical schools are having a tough time meeting their budgets—as who is not? In many areas we could use more doctors and dentists. But to leap from these admissions to the conclusion that socialized medicine is the only cure, is like cutting off your head because you have a headache.
>
> "Let's take a sober look at where we are before we jump into the Never-Never Land.
>
> "The simple fact is that American medicine is today the finest in history. Our entirely free medical profession and its allied scientists have conquered scourges such as diphtheria, smallpox, typhoid and scarlet fever, which once wreaked terror over whole nations. Even pneumonia is on its way out as a killer and significant progress has been made with such stubborn problems as leprosy, infantile paralysis, heart disease and cancer.
>
> "The life expectancy of Americans has been increased twenty years in just the past half century. In the last third of a century the rate of infant mortality has been cut by three-quarters. Insofar as medical personnel is concerned, we have more doctors per capita than any other great nation in the world."

Lenin An Expert on Subject

Dewey then made his to-the-point conclusion:

> "I cannot prove that compulsory medicine is the keystone of the arch of a totalitarian state, but Lenin said that it was and he was an expert on the subject."

COMMITTEE QUOTES WORDS OF WISDOM

Proving again that the wisdom of freedom is time-honored, the committee for Constitutional Government quotes the following:

> "*IT WAS WISDOM AGES AGO:* Men too often, in their revenge, set the example of doing away with those general laws to which all alike can look for salvation in adversity.—Thucydides, 426, B. C.
>
> "*IT WAS WISDOM TWO GENERATIONS AGO:* All socialism involves slavery. What is a slave? We primarily think of him as one who is owned by another. The essential question is: How much is he compelled to labor for other benefit than his own? The degree of his slavery varies according to the ratio between that which he is forced to yield up and that which he is allowed to retain; and it matters not whether his master is a single person or society. If, without option, he has to labor for society and receives from the general stock such portion as the society awards him, he becomes a slave to society. Socialistic arrangements necessitate an enslavement of this kind.—Herbert Spencer, *The Man Versus the State,* 1884.
>
> "*IT IS WISDOM TODAY:* The chief threat to human rights is no longer one of too little government. Freedom's greatest threat today is too much government, that all limits to government action may be swept away. Is there to be no line beyond which government shall not go, as it is in Soviet Russia, and becoming so in socialistic England? The plunder of our natural resources has been largely checked. Are we now to have a system of plunder of the national treasury? Is the old 'let me alone' philosophy to be replaced by nothing better than 'gimme mine' philosophy? —Bernard M. Baruch."

And, additional quotes on freedom from government interference are meaningful and relevant:

> "Today, federal taxation and government borrowing against the future are not merely . . . nuisances, they are major determinants of business policy, and they dominate and shape the course of our economic developments, the level of our prices and the extent of our national wealth. They are a lien of enormous size upon our past savings and upon our future production.—*Monthly Digest of Business Conditions.*
>
> "Freedom exists only where the people take care of the government.—Woodrow Wilson.
>
> "In a socialistic state, all men are theoretically equal financially. This country has already qualified with:
>
> Income taxes, final equalizer of all incomes.
>
> Social Security, misnomer for another tax.
>
> Federal grants, money taken from you, then you match it, and part of it comes back. . . .
>
> Estate and inheritance taxes, they get you after you're gone.—*Berea* (Ohio) *Enterprise.*"

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

230 Lowry Medical Arts Building
Saint Paul, Minnesota

Julian F. Dubois, M.D., Secretary

UNLICENSED MASSEUSE PLEADS GUILTY TO CRIMINAL ABORTION

Re: State of Minnesota vs. Florence Fossum

On June 15, 1950, Florence Fossum, fifty-eight years of age, residing at 3133 Oakland Avenue, Minneapolis, was sentenced by the Hon. Rolf Fosseen to a term of not to exceed four years in the Women's Reformatory at Shakopee. Mrs. Fossum had pleaded guilty on May 3, 1950, to an information charging her with the crime of abortion. Judge Fosseen, following a statement by legal counsel for the Minnesota State Board of Medical Examiners and the County Attorney's office of Hennepin County, stayed the sentence for three years and placed Mrs. Fossum on probation, one of the conditions being that the defendant is to refrain from the practice of healing and specifically is forbidden to engage in the practice of massage or the operation of a health food store.

Mrs. Fossum was arrested by Minneapolis police officers on March 24, 1950, following the admission of a forty-year-old married Minneapolis woman to a Minneapolis hospital. The patient was seriously ill with an infection following a criminal abortion. Upon being questioned, the patient stated that the abortion was performed by a woman by the name of "Florence" who operated a store at 215 W. Lake Street, Minneapolis. The defendant was promptly arrested and upon being arraigned in the Municipal Court at Minneapolis, demanded a preliminary hearing which was set for April 12. However, Mrs. Fossum changed her mind, waived the preliminary hearing and entered a plea of guilty in the District Court. At the time of Mrs. Fossum's arrest Minneapolis Police Officers seized medical and surgical equipment used in the performing of abortions. Mrs. Fossum stated that she was a masseuse. However, she admitted that she holds no license to practice massage or any other form of healing in the State of Minnesota.

OPERATOR OF MEAT MARKET AND GROCERY STORE PLEADS GUILTY TO ABORTION

Re: State of Minnesota vs. Paul C. Schwede

On June 20, 1950, Paul C. Schwede, forty-five years of age, who operates a grocery store and meat market at 259 Cedar Ave., Minneapolis, was sentenced by the Hon. Rolf Fosseen, Judge of the District Court of Hennepin County, to a term of not to exceed four years in the State Prison at Stillwater for the crime of abortion. Judge Fosseen stayed the sentence for three years and placed the defendant on probation after Schwede has served three months in the Minneapolis Workhouse. Judge Fosseen also ordered Schwede's surgical instruments confiscated and turned over to the Minneapolis General Hospital.

Schwede, who holds no license to practice any form of healing in Minnesota, was arrested on May 23, 1950, following the hospitalization of a nineteen-year-old divorcee who was suffering from an infection from a criminal abortion. Minneapolis police officers found a practically new medical kit containing three speculums, a dozen catheters, surgical instruments and seven bottles of various medicinal preparations at Schwede's place of business at the time of his arrest. The investigation disclosed that the abortion was performed at the home of a former employe of Schwede's. A fee of $400 was paid for the abortion but Schwede's former employe concealed from him the fact that she withheld $250 of the fee. The accomplice was not prosecuted because she disclosed the facts leading to Schwede's arrest.

Judge Fosseen questioned Schwede carefully about his prior activities and he stated to the Court that, while he lived at 2084 Roblyn Avenue, Saint Paul, he had been in business in Minneapolis for a number of years. He admitted to the Court that he had performed a total of seven criminal abortions since the fall of 1949. When asked by Judge Fosseen as to how he learned to do abortions, he replied: "By reading medical books." Schwede said that he had been in financial difficulties and for that reason sought to supplement his income. The records of the United States District Court in Minneapolis disclose that on November 4, 1946, Schwede was fined $200 following a plea of *nolo contendere* to an information charging him with a conspiracy against the United States in connection with the illegal use of counterfeit sugar stamps.

PAN AMERICAN SANITARY BUREAU TO ASSIST VENEZUELA IN PLAGUE SURVEY

Commander Julius M. Amberson, of the U. S. Navy, Bureau of Medicine and Surgery, left Washington early in July for Venezuela to lend assistance to health authorities in making a survey of plague in that country, it was announced by the Pan American Sanitary Bureau, Regional Office of the World Health Organization. Commander Amberson is accompanied by Dr. Ernst Schwarz, also of the Bureau of Medicine and Surgery.

A small focus of plague in Venezuela has caused sporadic outbreaks of human cases over a period of years. This plague reservoir recently became active again, and the Ministry of Health requested the technical assistance of the Pan American Sanitary Bureau in making a thorough study of this problem with a view to the elimination of the center of infection.

The Bureau obtained the collaboration of Commander J. M. Amberson of the U. S. Navy. Commander Amberson has had considerable experience on field surveys of rodent and flea populations, and will make an epidemiological rodent and insect survey of the infected area. The site chosen for the study is the Campamento Rafael Rangel, 4,132 feet above sea level, and the study unit will spend from six to eight weeks in this endemic area of Venezuela.

ALL-INCLUSIVE CHEST SERVICE

The care, the study and the teaching of tuberculous disease today should be the responsibility of the broadly trained medical internist-investigator in close association with the highly proficient, experienced chest surgeon as part of the larger problem of the better understanding and control of all cardiopulmonary diseases involving the chest. Such an all-inclusive chest service should be an integral part of every large general hospital and medical teaching center, in the best interests of patients, physicians, undergraduate medical students and resident staff. This means medical center segregation in the future, rather than sanatorium isolation as in the past, with the tuberculous patient receiving equal acceptance and complete attention, including prompt recognition and specific treatment of his nontuberculous complications which ofttimes threaten his existence more seriously than does the tuberculosis, itself.—Charles A. Doan, M.D., *Ohio Public Health,* May, 1950.

Minnesota Academy of Medicine

Meeting of February 8, 1950

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, February 8, 1950. Dinner was served at 7 o'clock and the meeting was called to order at 8:10 p.m. by the President, Dr. William A. Hanson.

Minutes of the January meeting were read and approved.

The Secretary then read the annual report of the Treasurer and this was accepted.

The Executive Committee reported that it had approved the transfer to the Senior List of the names of Drs. Benjamin, Ulrich, White and Benedict.

The Executive Committee also reported that it felt the Constitution of the Academy should be studied and changes recommended; Dr. Lepak and others will go over this carefully and the recommended changes will be voted on at a future meeting.

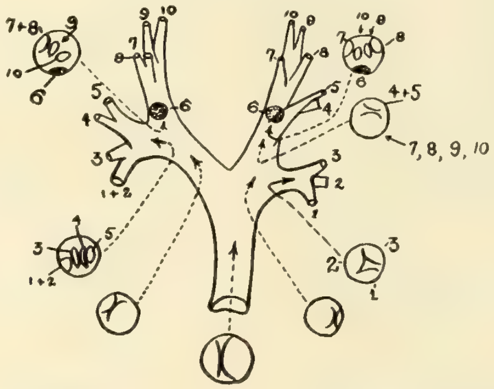
The scientific program then followed.

RECENT ADVANCES IN THE BRONCHOSCOPIC STUDY OF PULMONARY DISEASE

ROBERT E. PRIEST, M.D.
Minneapolis, Minnesota

Rapid advances in the surgical management of intrathoracic disease have been made recently. One phase of this advance has included refinement of bronchologic methods. Accurate and simplified nomenclature to denote various parts of the lung, the use of bronchoscopic telescopes, and improvement in the collection of specimens for cytologic and histologic study have been developed. Each of these procedures entails the participation of one or more members of the thoracic surgical team.

BRONCHOSCOPIC REPORT



LEFT LUNG

Lobe	Bronchus		Segment
Upper	Upper Division	L1&2	Apical-posterior
		L3	Anterior
	Lower Division (lingular)	L4	Superior
		L5	Inferior
Lower	....	L6	Superior (apical)
		L7&8	Anterior-medial Basal
		L9	Lateral Basal
		L10	Posterior Basal

RIGHT LUNG

Lobe	Bronchus	Segment
Upper	R1	Apical
	R2	Posterior
	R3	Anterior
Middle	R4	Lateral
	R5	Medial
Lower	R6	Superior (apical
	R7	Medial Basal
	R8	Anterior Basal
	R9	Lateral Basal
	R10	Posterior Bas

Fig. 1. Bronchoscopic report form using simple descriptive names and numbers to designate bronchi. (Adapted from Jackson and Huber, Overholt, and from Boyden.)

This team includes the physician who originally suspects and diagnoses the pulmonary disease, the thoracic surgeon, the radiologist who has special knowledge and interest in pulmonary topographic anatomy and pathology, the pathologist who is trained in pathologic cytology as well as histology, the anesthesiologist and the bronchoscopist. Each member of the team must of necessity be familiar with much of the knowledge and with the thought processes of other members of the

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Dr. Priest is Clinical Assistant Professor of Otolaryngology, University of Minnesota Medical School, and Chief of Ear, Nose and Throat Service, Minneapolis General Hospital.

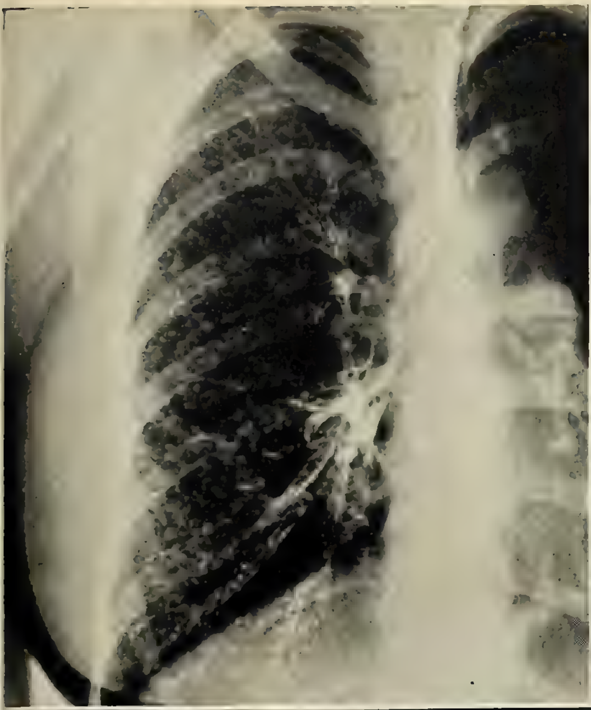

Fig. 2. (*Upper left*) Normal right bronchogram showing upper, middle and lower lobe bronchi and their subdivisions outlined by lipiodol.

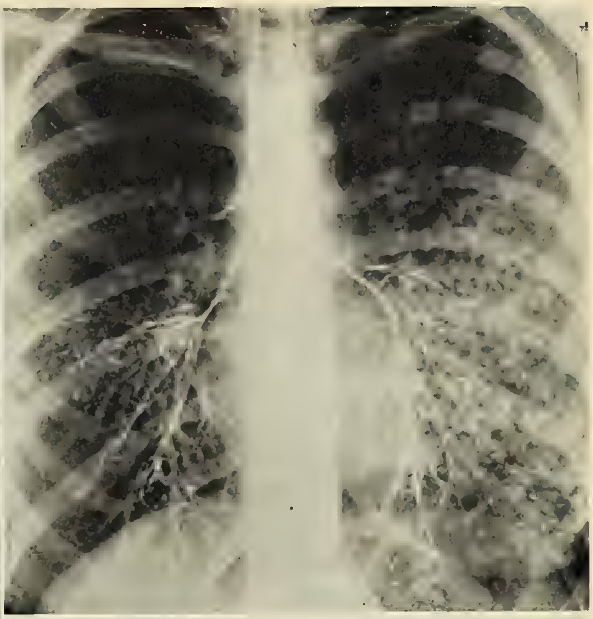

Fig. 3. (*Upper right*) Normal left bronchogram showing good lower lobe filling. Upper lobe demonstration on this particular film is not especially good but all lobes can seldom be demonstrated on a single film.

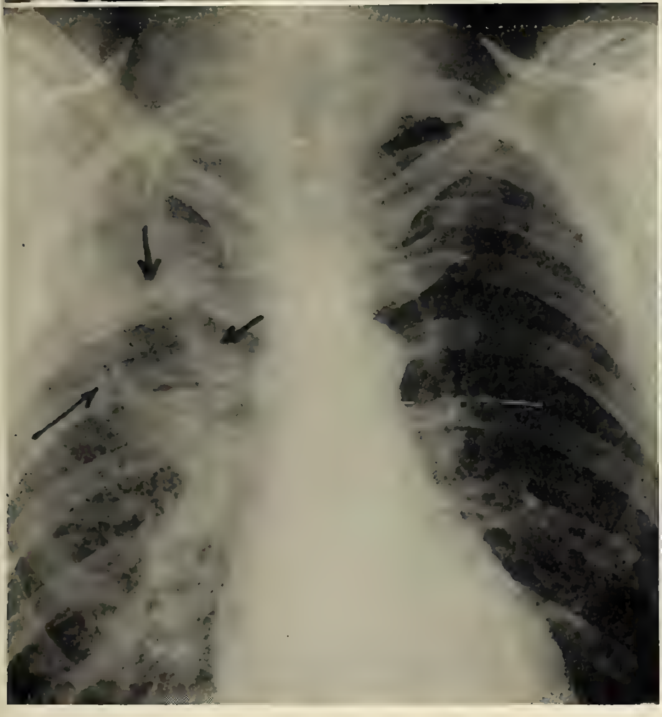

Fig. 4. (*Lower left*) Cyst of right upper lobe showing fluid level.

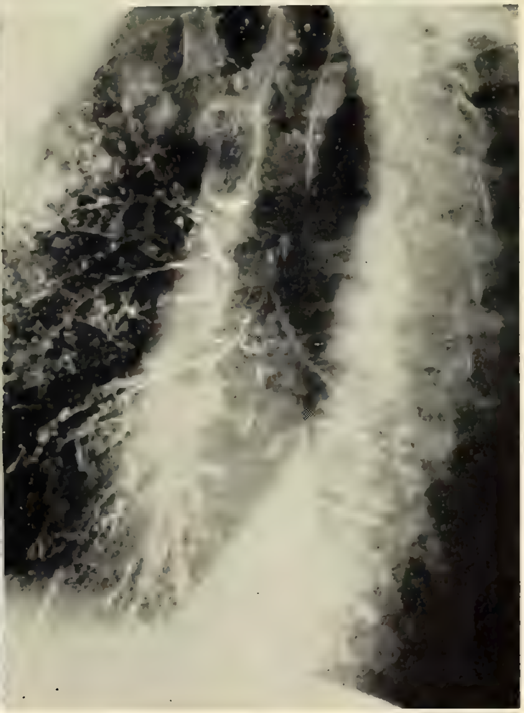

Fig. 5. (*Lower right*) Cyst of right upper lobe with lipiodol outlining bronchi and entering cyst.

team; the patient is best served when the entire group is closely integrated. Several phases of bronchology will now be examined more closely.

The use of accurate simple nomenclature enables the radiologist, bronchoscopist and thoracic surgeon to discuss pulmonary conditions with great accuracy. Early bronchial anatomic classifications were confusing and complex. Boyden[1,2] and Brock[3] have published excellent

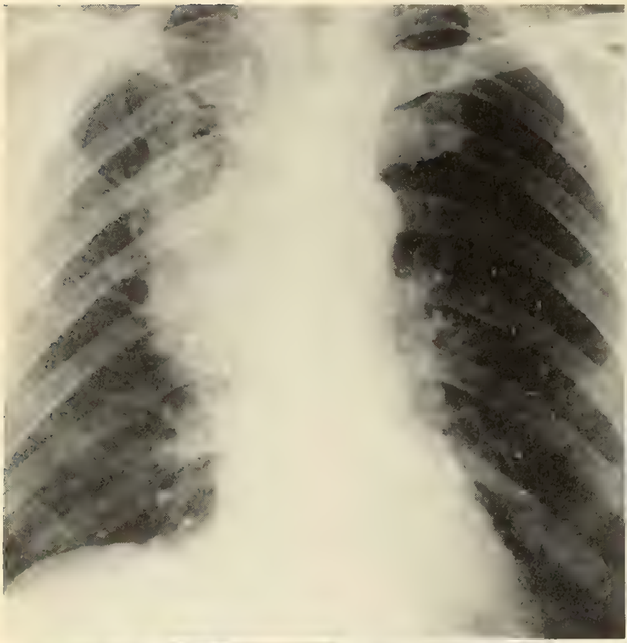

Fig. 6. (*Upper left*) Carcinoma of right upper lobe.

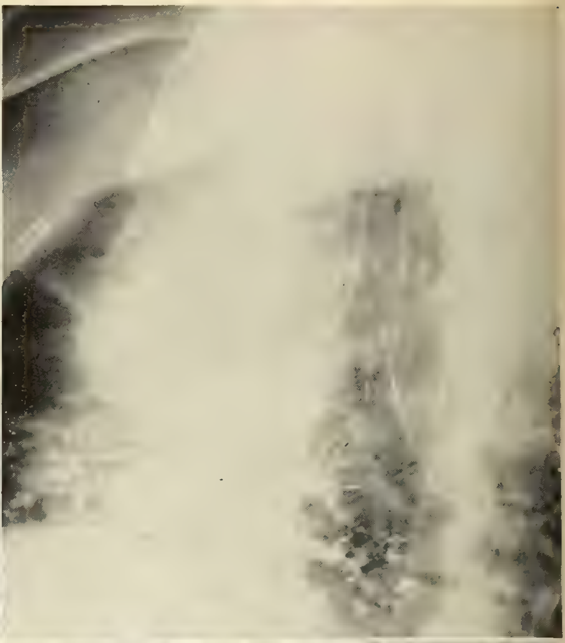

Fig. 7. (*Upper right*) Same case as Figure 6, lipiodol outlining closed upper lobe bronchus by tumor biopsied bronchoscopically.

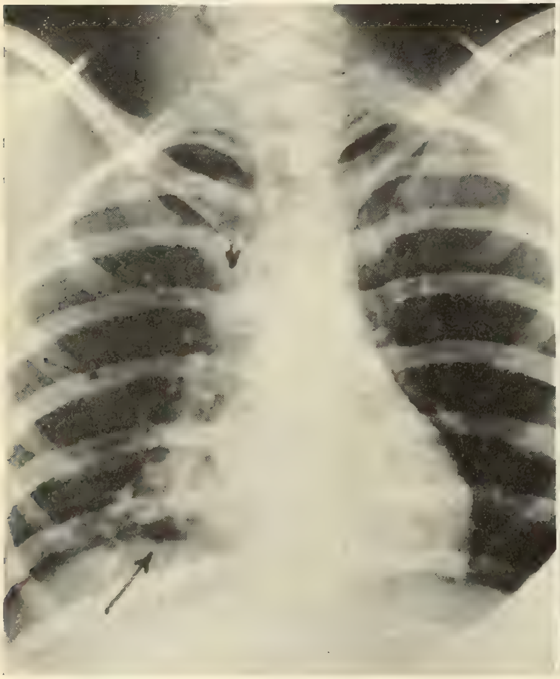

Fig. 8. (*Lower left*) Postero-anterior chest film showing mottled density of right middle lobe area. (See figure 9.)

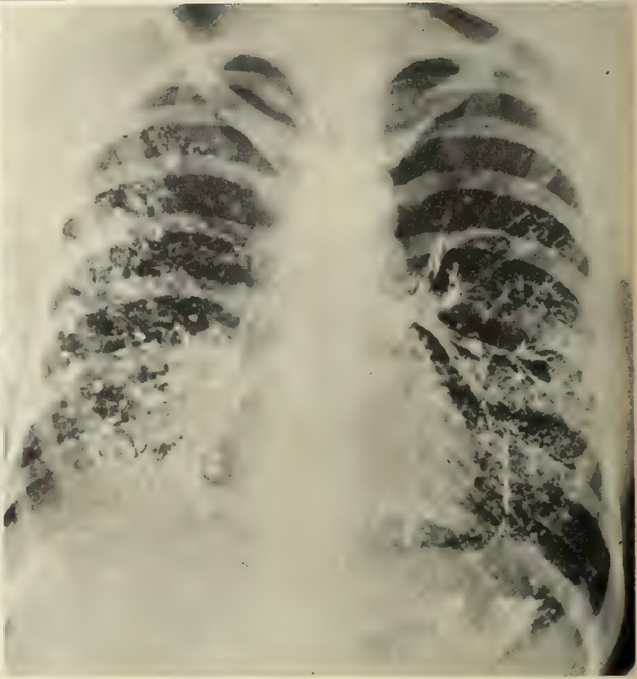

Fig. 9. (*Lower right*) Same as Figure 8 but bronchiectatic cavities of right middle lobe are now filled with lipiodol. Left lung normal.

reviews of the papers on this subject. In 1943 Jackson and Huber[8] outlined a simple descriptive classification. In 1945 Boyden[7] further simplified this system by adding numbers to the names of the main branch bronchi. Boyden's numbering system extends beyond the ten primary bronchi; he uses letters and numbers to designate arteries and veins in the same way. Overholt and Langer[9] emphasize the facility with which the surgeon can use numbers to designate certain bronchi.

Numbers are easy to use, and the classification is kept from becoming complex by numbering only those bronchi seen by the bronchoscopist either by direct vision or through the bronchoscopic telescope. A combination of the two methods with the diagram of the lung turned

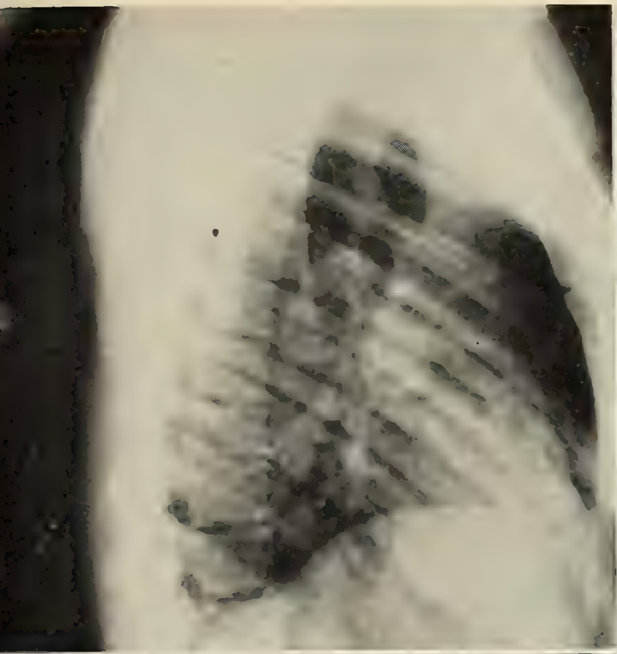

Fig. 10. (*Upper left*) Same case as Figures 8 and 9; bronchiectatic cavities in right middle lobe seen from the side without ontrast medium.

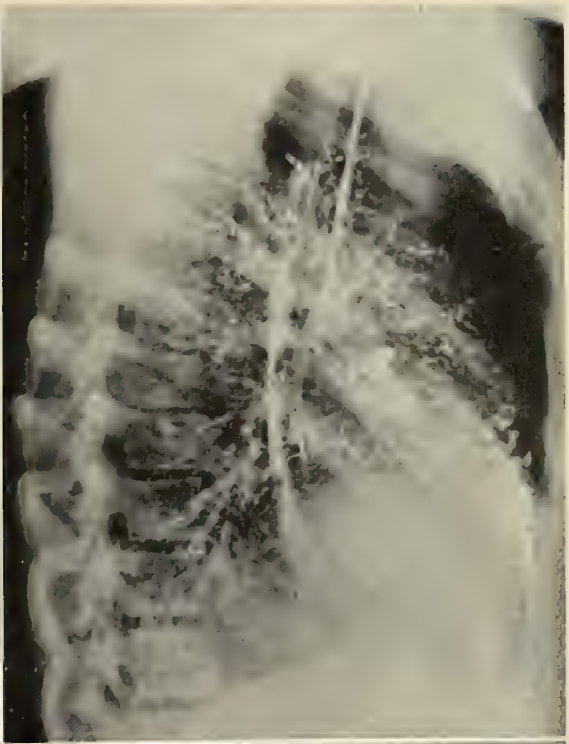

Fig. 11. (*Upper right*) Same as Figure 10 with addition of lipiodol to outline bronchiectatic cavities.

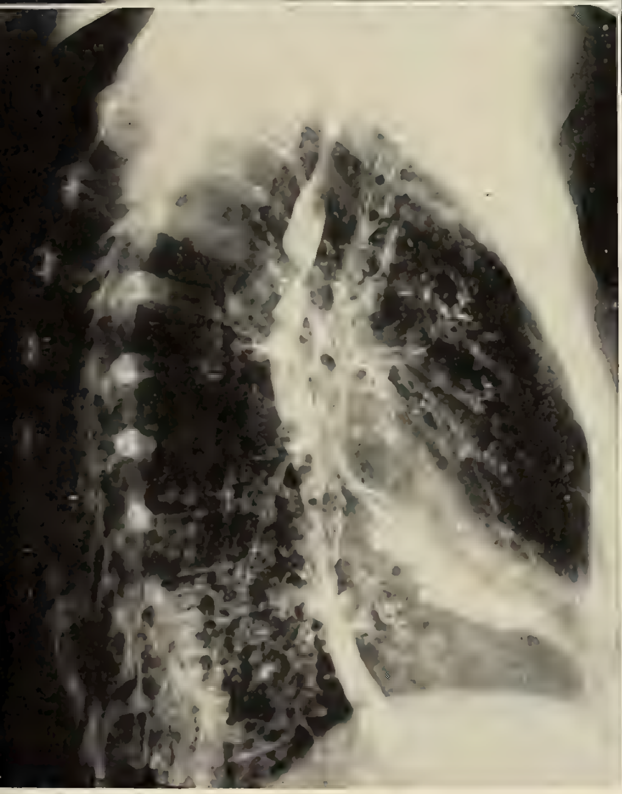

Fig. 12. (*Lower left*) Another case of bronchiectasis and atelectasis of right middle pulmonary lobe outlined by lipiodol.

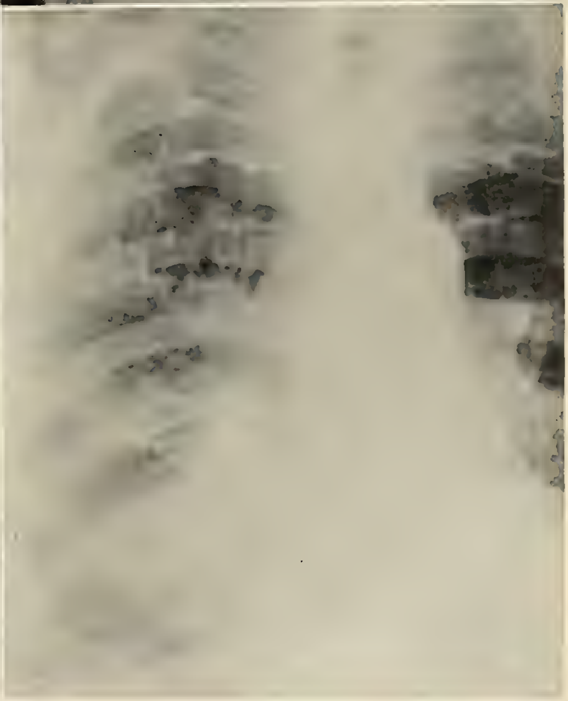

Fig. 13. (*Lower right*) Increased density of right lower lobe due to carcinoma biopsied bronchoscopically.

upside down to coincide with the bronchoscopist's point of view is the method used here. Figure 1 illustrates the bronchial naming system. With all members of the thoracic surgical team using the same names for parts of the lung it is obvious that accuracy is greatly increased.

Complete mapping of the main branches of the bronchial tree can be done when the bronchoscopist and radi-

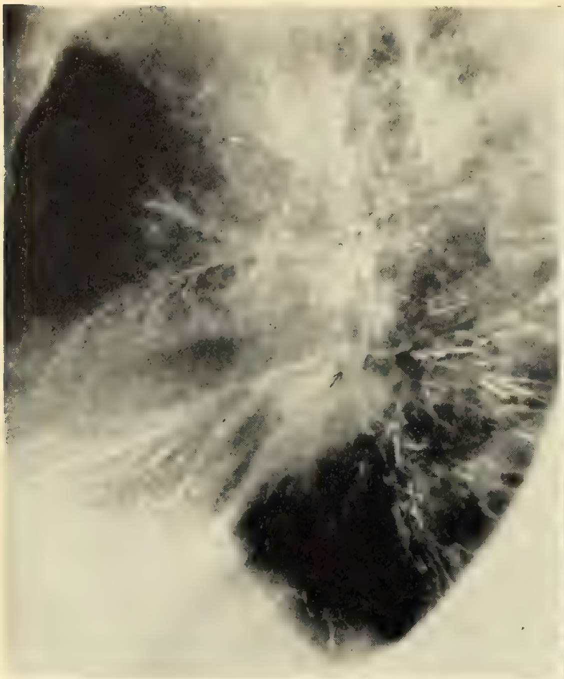

Fig. 14. Same case as Figure 13 showing filling defect of right lower lobe bronchus (*see* arrow).

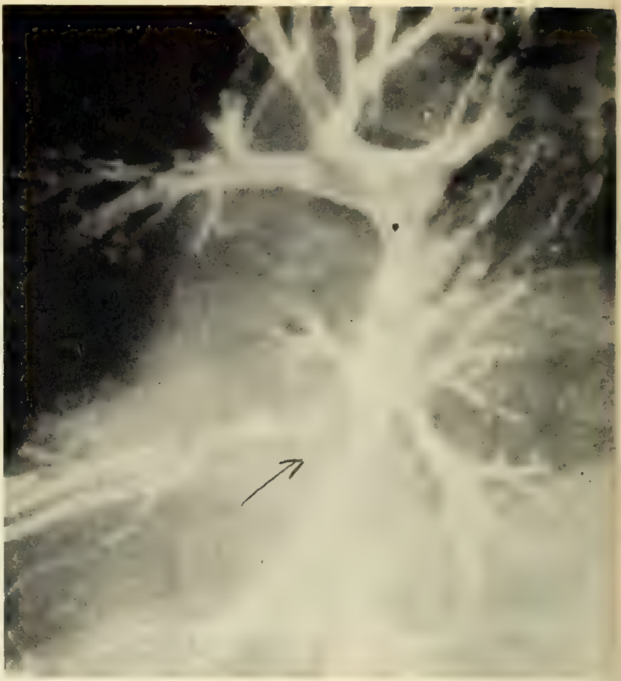

Fig. 15. Same as Figure 14 but "spot" film showing filling defect at junction of right lower and middle lobes.

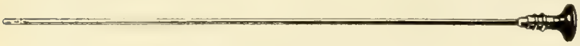

Fig. 16. The right angle bronchoscopic telescope is shown. This instrument allows the bronchoscopist to look directly into the right and left upper lobe bronchi and the dorsal apical divisions of the lower lobes. The bronchi run at right angles from the main bronchi and cannot be seen through the bronchoscope alone.

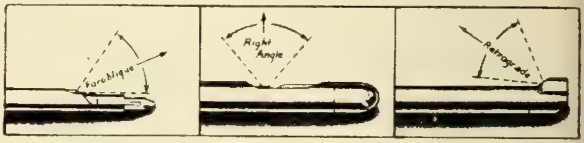

Fig. 17. Three angles of vision are possible through the right angle, forablique and retrograde telescopes.

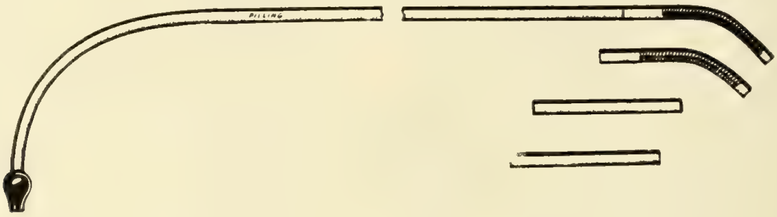

Fig. 18. Specimen collectors permitting aspiration of material into detachable suction tips where the specimens are trapped on cotton.

ologist unite their efforts. Poor and incomplete bronchograms are often seen. They do not permit accurate understanding of the extent and nature of the pulmonary disease process under consideration, and like all poor radiographs give a false sense of security to the patient. Completely adequate topical anesthesia of the bronchial mucosa, fluoroscopic visualization during instillation of the contrast medium, and the proper use of "spot" and conventially made films produce excellent maps of the pulmonary airways. (Figs. 2-15). A recent complete treatise on radiologic bronchial study is that of Di Rienzo.[5]

The use of telescopes for magnified, brilliantly illuminated visualization of the bronchial tree has been possible recently. Broyles of Johns Hopkins University developed telescopes for bronchoscopic use by modifying cystoscopic telescopes. The bronchoscopist can now make accurate visual examination of bronchi whose axes are at right angles and at various obtuse and acute angles to the main bronchi. Accurate diagnoses can be made by visualizing pathologic processes lying entirely outside the range of the ordinary tubular bronchoscope (Figs. 16 and 17).

The collection of specimens for bacteriologic and cytologic study has been improved as better aspirating devices have come into being. The collector devised by

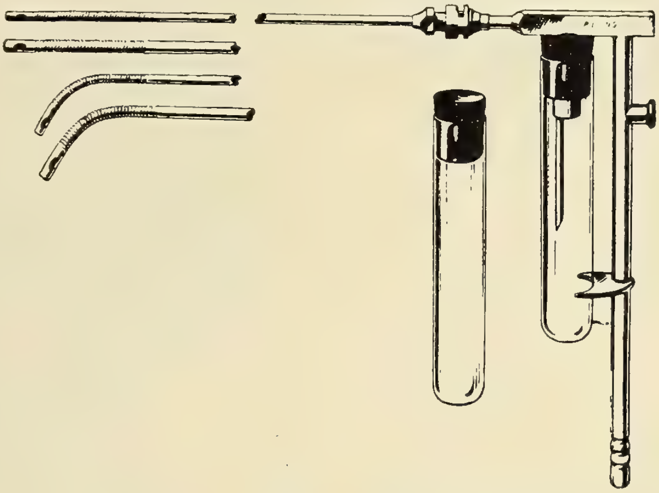

Fig. 19. Clerf aspirator in which specimen is trapped in glass tube. Detachable aspirating tips are shaped so that they may be introduced into various bronchi for aspiration from a particular segment of the lung.

erf of Jefferson University Medical School has per-
itted selective aspiration of various bronchial lobes
d segments (Figs. 18 and 19).
The cytologic study of such aspirated material has
ecome an important subspecialty in the field of pa-
ology. Bronchial washings submitted for study must
evaluated on a basis of cytology rather than micro-
opic tissue anatomy. The pathologist must be familiar
ith changes in individual cells and does not have the
portunity to base his diagnosis on abnormal tissue
chitecture. Foot[6] says, "The cytologic method has
oved to be extraordinarily reliable." He quotes Fre-
ont-Smith, Graham and Meigs[7] who said, "A negative
port does not rule out cancer. Confirmation by biopsy
almost obligatory. False positive reports can be very
nbarrassing to the cytologist." One may remark par-
thetically that the embarrassment is not limited to
e cytologist!
When all of the methods discussed here are applied
a particular patient having pulmonary disease an ac-
rate diagnosis and proper therapy are likely to result.

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Discussion

Dr. L. R. Boies, Minneapolis: The excellence of this presentation makes any discussion rather superfluous. Recently, I have been re-reading "The Life of Chevalier Jackson." I recommend it to you as an inspiring account of the accomplishments of a great man. Dr. Jackson's contributions are often thought of in terms of instruments and technique, but he was more than a technician; he knew medicine. Though many have taken brief courses in endoscopic technique at his clinics he has inspired a few to follow in his footsteps. Clerf, Tucker, his son C. L. Jackson, and Holinger are his well-known pupils. The presentation by Dr. Priest tonight puts him in a class with these men.

I have always contended that it would be logical for the internist or surgeon who carries out the treatment of chest diseases to do endoscopic examinations. There has been a trend this way but it apparently has not persisted and a majority of endoscopic work is still in the hands of the laryngologist. The probable reason for this is that the laryngologist who is doing a lot of this work develops a technique and finesse which make of it a relatively simple and minor procedure, whereas the occasional endoscopist finds that for both the patient and himself there are some tribulations.

The modern resident in otolaryngology acquires a good experience in this work. In 1947, one of our residents who has now returned to Iceland reported his experiences at the University Hospital for a two-year period in which he had participated in 306 endoscopic procedures. A recent checkup at the University Hospital showed that we are now doing 25 to 30 endoscopic examinations per month. I have just had a report from our service at the U. S. Veterans Hospital which indicates that for the year ending February 1, 1950, a total of 479 endoscopic procedures were done. Approximately 90 per cent of these procedures are on the tracheobronchial tree. These figures indicate the increased demand for endoscopy and they give you some idea of the opportunity the modern resident in laryngology has to acquire skill and judgment.

Dr. T. J. Kinsella, Minneapolis: I wish to congratulate Dr. Priest upon this presentation. It is quite typical of him and the type of work that he does. Thoracic surgery requires the co-operative effort of the internist, roentgenologist, pathologist, bronchoscopist, anesthetist and thoracic surgeon for its success. Endoscopic examination is very important in arriving at a proper diagnosis. Endoscopy requires more than a mechanic if maximum information is to be obtained from the examination and the operator must know a great deal about pulmonary disease in order to interpret what he sees through the bronchoscope. We do not do our own bronchoscopic examinations because Dr. Priest furnishes us with the precise information we need in order to evaluate the patient's difficulties. Good teamwork between the various groups is what makes most of our thoracic surgery possible.

Dr. L. G. Rigler, University of Minnesota: As I watched Dr. Priest present this paper, I began to wonder whether we had a radiologist or a bronchoscopist giving this thesis. As you noted, Dr. Priest used the x-ray studies very well in demonstrating the points he wanted to make. Because x-ray examination gives such a vivid portrayal of the gross pathology it is possible to do this particularly in diseases of the chest, and I am sure Dr. Priest utilized it to its best advantage.

I would be interested in knowing if these new types of endoscopes have advanced the diagnosis of tumors of the bronchi. There is a great variation in the data as to the bronchoscopic demonstration of tumors. At one time many years ago Graham said he would never do a resection of the lung without a positive biopsy made through the bronchoscope. He said that they had had cases in which they did as many as eighteen bronchoscopies until they finally got a positive. Obviously, over this period of time it is possible that the tumor grew up to the bronchoscope. I recently heard Chevalier L. Jackson say that they were running about 72 per cent positive biopsies in cases of bronchogenic carcinoma. Most other bronchoscopists give a figure of 50 per cent or less. What I would like to know is whether there are any data to indicate that the telescopic right angle lenses have improved the percentage of positive diagnoses possible by bronchoscopy. In our experience, upper lobe carcinomas have been much more frequent than the lower lobe ones, and in those cases bronchoscopy has not been very useful in making a definitive diagnosis.

Dr. Priest, in closing: I appreciate the nice things that have been said. In answer to Dr. Rigler's question, I haven't any figures to tell you what the rise in percentage of efficiency has been. There are certain parts of the lung which can't be seen without the various telescopes. The upper lobe of both the right and left lungs are completely out of reach without telescopes unless there is deformity in the bronchus. The same is true of the apical segments of both lower lobes. You have to have a right angle telescope to see them.

In answer to the second question: there is a telescope made with which you can get a biopsy. It only passes through an adult bronchoscope so cannot be used on children. You can biopsy without the telescope if you have clear vision. The place where we could use the telescope with forceps is in very small children. You have to depend on experience and your proprioceptive sense when you apply forceps in a small child.

EXTERNAL FIXATION OF FACIAL FRACTURES

JEROME HILGER, M.D.
Saint Paul, Minnesota

A major facial injury usually results in fracture of one or more of the thirteen bones of the facial skeleton. Soft tissue laceration is frequently present. The facial derangement, however, is not a matter of first importance in a fresh injury. It is vital, first, that the airway be maintained, and second, that the patient's blood volume be restored.

A face-down, head-dependent position minimizes aspiration of blood and secretions. If the mandible is severely shattered it may be necessary to pull the tongue forward by manual or safety pin traction. Oral suction is helpful. A tracheotomy for ventilation and aspiration should be elected readily rather than denied fearfully—particularly in an unconscious patient lacking adequate reflexes.

Bleeding from major vessels provides the only justification for immediate meddling with the wound. Clamp and tie is then proper but ligatures must be left long so they can be replaced during definitive care and debridement. A sterile dressing with modest elastic pressure is proper first care in all other instances. Nasal bleeding will be no problem if left alone. Edema of the nasal mucosa quickly provides an adequate pressure hemostasis. Adequate whole blood replacement should be provided promptly.

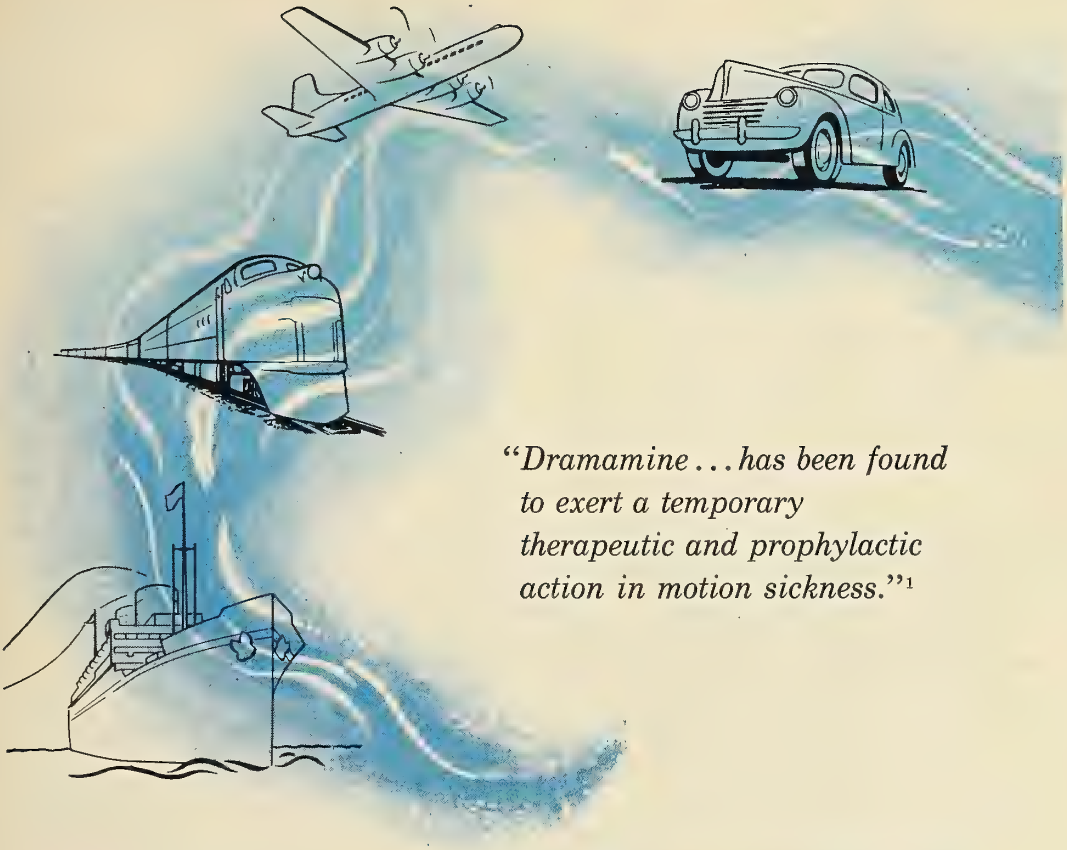
The interval for transfusion affords an excellent period for taking stock of the patient as a whole. Extremities, thoracic cage or pelvic frame may be fractured. A high per cent of jackknifing injuries have compression fracture of vertebrae. Abdominal viscera may be ruptured. A neurological examination is essential. The middle ears should be viewed relative to basal skull fracture.

The facial derangement should properly wait on the patient's general condition. When it justifies reparative work, the whole restorative program should be already visualized. The reparative surgical procedures should be grouped. It is embarrassing to find primary bone plating of humerus or femur is indicated when the jaws have already been approximated with intermaxillary wires, and a general anesthetic is no longer possible without deranging everything so far accomplished.

Soft tissue lacerations need not be closed for forty-eight hours. Approximation with sterile tape and maintenance of modest elastic pressure is adequate emergency care. It is often distinctly advantageous to have an open wound for direct access for wire or screw fixations. It is sometimes necessary to take down an over eager or hurried primary apposition to provide access or allow more deliberate apposition under unhurried conditions.

The primary soft tissue repair is not as vital to an excellent result as is the primary skeletal repair. The facial skeleton does not lend itself well to late adjustment or secondary revision. Blood supply is excellent and periosteal surfaces plentiful. Bone union is early and firm.

(Continued on Page 728)



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[1] Council on Pharmacy & Chemistry: New and Nonofficial Remedies, 1950, Philadelphia, J. B. Lippincott Co., 1950, p. 460.

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SEARLE RESEARCH IN THE SERVICE OF MEDICINE

EXTERNAL FIXATION OF FACIAL FRACTURES

(Continued from Page 726)

In the primary reparative procedure reposition of displaced parts should be effected or authority over irreplaceable parts should be established. This authority must be adequate to allow application of traction to the part or of support to a part that will not maintain itself in reposition. Reposition can then be effected at will in the postoperative period. The appliances by which one can command the movement and realignment of fragments are legion. The simplest appliance that will properly align and fix is the best. Unfortunately some fractures are comminuted and complex. The screws, pins, and wires commanding individual fragments may give the superficial appearance of a Rube Goldberg creation. The component parts, however, should always represent the simplest mechanical solution to the problem.

Mandibular or lower third fragments are approximated to the maxilla or middle third. When fragments of the middle facial third are freely movable, they are supported to a plaster head cap.

Traction is used to reposition obstinate displaced fragments. It may be by elastics between maxilla and mandible, or between any fragment and head cap. Bed frame, pully, and hanging weight are occasionally necessary to disimpact fragments or correct delayed malposition.

Middle facial third fragments may take weeks and lower third fragments months to establish self-supporting bone union.

Application of various external fixation techniques are illustrated.

Discussion

Dr. C. E. Connor, Saint Paul: The fundamental principle underlying the treatment of maxillo-facial fractures is that involved in the treatment of all fractures, e.g., the best possible repositioning of fragments as soon as feasible. Two end results must be kept in mind, the cosmetic and the functional. I know of no part of the body in which the final cosmetic result is subjected to as exact scrutiny as is the face, a factor often disregarded by the family in their intense concern over the patient's chances of survival, but a consideration which the surgeon must bear in mind from the beginning of treatment, not just when the patient is well on the road to recovery and the subsidence of swelling and edema gives a preview of the final cosmetic end-result.

The functional end-result is even more important. Inadequate positioning of structures such as the mandible, maxilla, nasal bones, septum, zygomatic arch, and orbital margin can produce not only non-pleasing cosmetic results but also functional disabilities which affect the patient's health.

Plastic surgeons of wide experience in facial injuries have long endeavored to persuade automobile designers and builders to make the instrument panel a less lethal structure by the removal of protruding knobs, handles and sharp edges but have so far met with but little success.

Dr. Wallace P. Ritchie, Saint Paul: I was very fortunate to see Dr. Hilger do some of these cases. He has mentioned that they are frequently combined operations, and in several instances a combined intracranial and facial operation was carried out at the same time. One of the complications of these cases is a persistent cerebrospinal rhinorrhea. As a rule, this will stop if the bones are realigned properly, but occasionally it persists and an intracranial approach with covering of the dura tear is necessary.

Dr. Hilger, in closing: I have been fortunate in associating with Dr. Ritchie in the combined care of a number of the cases having intracranial as well as extracranial injury. Many of these cases demand combined effort. It is frequently possible and distinctly advantageous to do the intracranial repair at the time of the facial repair. In all the cases I was fortunate enough to share with him in three years of overseas service we had no death from postoperative intracranial infection. There were no repaired cases which had persistence of cerebrospinal fluid leak.

It is purposeful in closing to make special point that old thinking on severe injuries with fracture of the cribiform plate and cerebrospinal fluid leak needs revision in the light of modern antibiotic therapy. It has been customary in the past to put this type of case to bed until the cerebrospinal fluid leak ceases and then to proceed with the repair of the facial injury. Not uncommonly the facial injury in this type of case is already past the optimum time for repair by the time the cerebrospinal rhinorrhea has ceased. As one can appreciate, the thin bony floor of the anterior cranial fossa will heal by fibrous union much more promptly if the bone fragments are realigned early and placed in a near-abutting position. The marked distortion resulting from trauma oftentimes will leave a wide gap between bone fragments. This prolongs the healing period and may even result in incomplete healing and a persistent cerebrospinal fluid leak. With the use of an adequate antibiotic shield and the prior restoration of the patient's blood volume this type of combined injury should be repaired as promptly as the patient's general circumstances will permit. This actually affords earlier opportunity for healing of the anterior cranial fossa floor and thereby minimizes the opportunity for intracranial extension of infection.

I wish to thank Dr. Connor and Dr. Ritchie for their kind discussion.

The meeting adjourned.

Wallace P. Ritchie, *Secretary.*

THEY DON'T DIE YOUNG NOW

A remarkable change in the tuberculosis picture in Minnesota is evident from a comparison of the 1949 figures showing the ages at death from all forms of this disease with those of thirty years ago.

In 1919, the median (mid-point) for deaths attributed to tuberculosis was in the age group thirty to thirty-nine years. In other words, half the total deaths from this disease occurred before thirty-nine years of age. In the short period of a single generation, this situation has materially altered. Today the median for deaths from tuberculosis is in the age group fifty to fifty-nine years. Tuberculosis in a young person is still a very serious disease. But the number of young people in Minnesota who are exposed to tuberculosis has been greatly reduced during recent years, with a resulting reduction in number of deaths. Last year only forty-three persons under thirty years of age died from this disease in our state, compared with 180 deaths among persons aged sixty or over. The latter number was more than one-third of all the deaths from tuberculosis in 1949.

This change has been brought about by the tremendous reduction in the incidence of tuberculosis, particularly among young people. The reduction in deaths has been accomplished by reducing exposures to the disease through isolation of infectious cases in sanatoria; by finding and treating cases early before they become serious enough to cause death; and by the improved methods of treatment now available.—*Minnesota Health,* June, 1950.

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In Memoriam

DUMA CARROLL ARNOLD

Dr. D. C. Arnold of Minneapolis died June 12, 1950, when he collapsed while walking across the campus of the University of Pennsylvania at Philadelphia.

Dr. Arnold was born January 9, 1892, in North Carolina. He received his medical degree from the University of Pennsylvania in 1920 and practiced in Roebling, New Jersey, for several years before coming to Minneapolis in 1925. Both Dr. Arnold and his wife, Dr. Ann W. Arnold, were obstetricians. They met in medical school and were married May 16, 1925. They had attended the graduation of their daughter Nancy from Vassar College shortly before, and were attending a reunion at their Alma Mater when he was stricken.

Dr. Arnold was a member of the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association. He was a clinical instructor in obstetrics and gynecology at the University of Minnesota.

Dr. Arnold is survived by his wife; a daughter, Nancy, and a son, Thomas B., who is a junior at Dartmouth College.

ERNEST WILLIAM COWERN

Dr. Ernest W. Cowern, a practitioner at North Saint Paul since 1903, passed away at St. John's Hospital, Saint Paul, on June 22, 1950, after a long illness.

Dr. Cowern was born in Wolverhampton, England, March 3, 1871. He obtained his medical degree from Dartmouth medical school in 1902, and after practicing for a brief time in Massachusetts and New Hampshire he came to North Saint Paul. He married Fannie Wallace Schofield of Wolfville, Nova Scotia, in 1903. She died in 1938.

Dr. Cowern served as school physician at North Saint Paul for a number of years. He was chief of staff at St. John's Hospital, Saint Paul, at one time. He was a member of Ramsey County Medical Society, the Minnesota State Medical Association and the American Medical Association. During World War I, he was medical instructor at Fort Oglethorpe, Georgia.

In 1946, Dr. Cowern was honored by a party staged in the North Saint Paul Masonic Temple. On this occasion he stated he had brought 1,360 babies into the world. Many of those at whose birth he had officiated attended the party.

Dr. Cowern is survived by three daughters: Mrs. Leslie Webster of North Saint Paul, Mrs. Donald Swift of Port Washington, New York, and Constance of Seattle. Four brothers, among them J. F. Cowern of North Saint Paul and three sisters also survive him.

EVERETT K. GEER

Dr. Everett Kinne Geer died in his home in Saint Paul on May 3, 1950, following a protracted illness.

Dr. Geer was born in Saint Paul on January 14, 1893, the son of Dr. Ethelbert F. Geer and Helen Hazen Geer. After graduating from Central High School, he attended the University of Minnesota, where he obtained a B.S. degree in 1915 and M.D. degree in 1917. He served his internship in the Minneapolis General Hospital in 1916-1917 and did postgraduate work in the Trudeau School for Tuberculosis at Saranac Lake, New York.

In the first World War, he did his tour of duty as a Lieutenant in the Medical Corps of the U. S. Navy.

In 1918, Dr. Geer married Olive Barnett Lewis. Mrs. Geer as well as a daughter, Mrs. John Donahower, and a son, Thomas, survive. His eldest son, Everett K. Geer, Jr., was killed in action in World War II.

Dr. Geer held many important positions in his special field of training. He was Chief Physician of the Tuberculosis Division at Ancker Hospital in Saint Paul from 1922 until his resignation terminated the appointment in 1949. In 1932, he was made Medical Director of the Children's Preventorium, Ramsey County, and took an active role in the management of this institution. He was consultant for Pokegama Sanatorium, Pine County, from 1920 to 1943 when the institution closed. The University of Minnesota Medical School recognized his ability by making him Instructor of Medicine in 1921 and Assistant Professor in 1934. He was a diplomate of the American Board of Internal Medicine and a fellow of the American College of Physicians.

Dr. Geer was a member of the following societies: American Heart Association, American Sanatorium Association, American Trudeau Society, Central Society for Clinical Research, International Union against Tuberculosis, Minnesota Academy of Medicine, Minnesota Society of Internal Medicine, Minnesota Pathological Society, Minnesota State Medical Association, Minnesota Trudeau Society, National Tuberculosis Association, Ramsey County Medical Society, Minnesota Public Health Association and the Ramsey County Health Association.

A number of these societies added to Dr. Geer's responsibilities by giving him official position. He was a council member of the American Trudeau Society from 1941 to 1943. In addition he served as president of the Minnesota Trudeau Society in 1934-35 and of the Ramsey County Public Health Association in 1944.

The *Index Medicus,* lists fourteen papers by Dr. Geer on problems of chest disease. In 1932, he read a paper entitled "Primary Tuberculosis Among Nurses" before the National Tuberculosis Association. This was followed by four papers on the same theme and introduced his work in the prevention of tuberculosis infection in nurses employed in institutions for the care of tuberculous patients. This contribution was outstanding, and his technique has been adopted in many sanatoria here and abroad. Dr. Geer's influence outside the United

(Continued on Page 732)

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EVERETT K. GEER

(Continued from Page 730)

States is illustrated by a paper in Spanish on prevention of tuberculosis infection which appeared in *El dia Medico* (Buenos Aires). He will long be remembered by those who pay attention to the prevention of tuberculosis.

WILLIAM HENTY GOUGH

Dr. William H. Gough of Granada, Minnesota, died December 7, 1949, at the Fairmont County Hospital, Fairmont, Minnesota. He was ninety years of age.

Dr. Gough was born July 24, 1859. He graduated from the Ensworth Medical College at St. Joseph, Missouri, in 1884. He was formerly a member of the Blue Earth Valley Medical Society.

JUSTUS MATTHEWS

Dr. Justus Matthews, well known specialist in the treatment of nose and throat diseases in Minneapolis, died May 21, 1950, at St. Mary's Hospital, Rochester.

Dr. Matthews was born at Foster, Minnesota, September 27, 1877. He attended the Ortonville High School. At the age of twenty-one, he joined the Minnesota Thirteenth Volunteer Regiment which fought in the Philippines during the Spanish-American war.

Starting a civil engineering course at the University of Minnesota, he switched to medicine and obtained his M.D. degree in 1905. After a year's internship at Minneapolis General hospital, he joined the Mayo Clinic staff where he headed the nose and throat section.

In 1917, Dr. Matthews came to Minneapolis where he practiced his specialty until his death. Besides being a member of the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association, he was a fellow of the American College of Surgeons, a member of the American Laryngological, Rhinological and Otological Society, the American Academy of Ophthalmology and Otolaryngology, the Metropolitan club of New York and the Alpha Kappa Kappa medical fraternity.

Dr. Matthews was a bachelor and lived with his sister, Harriet. He was a member of the Minneapolis Club, the Minikahda Club, the Woodhill Country Club and the Chicago Club.

JOSEPH G. PARSONS

Dr. Joseph G. Parsons, formerly an associate at the Crookston Clinic, died May 14, 1950, at Hampton Falls, New Hampshire. He retired last year and moved to Hampton Falls.

Dr. Parsons was born at Pawlet, Vermont, January 24, 1877, and attended Bowdoin College before studying medicine at the University of Minnesota, where he received his M.D. in 1898. He practiced at Sioux Falls, South Dakota, for sixteen years, at Brookings, South Dakota, for nine years, and at Lewiston, Montana, for six years before coming to Crookston in 1930.

Dr. Parsons was a member of the American Academy of Ophthalmology and Otolaryngology, a fellow of th American Association for the Advancement of Scienc and a member of the Red River Valley Medical Societ the Minnesota State Medical Association and the American Medical Association.

Dr. Parsons is survived by his wife, a son, Seth, an a daughter, Mrs. V. A. Turner of Virginia.

JOHN J. RATCLIFFE

Dr. John J. Ratcliffe, for more than forty years practitioner at Aitkin, Minnesota, died May 29, 195 at the Northern Pacific Hospital in Saint Paul. He wa seventy-eight years of age.

Dr. Ratcliffe was born April 18, 1872, at Waukon Iowa. He obtained his medical degree from Rush Medical College in 1897. He was health officer in Aitki County for many years and was a member of the Uppe Mississippi Medical Society, the Minnesota State Medical Association and the American Medical Association

Dr. Ratcliffe is survived by his wife, one son an three daughters.

SAMUEL SCHAEFER

Dr. Samuel Schaefer of Winona, Minnesota, died Ma 30, 1950, following a brief illness.

Dr. Schaefer was born at Wykoff, Minnesota, December 23, 1880. After taking a year of premedical wor at the University of North Dakota, he studied medicine at the University of Michigan, graduating in 190 Editor-in-chief of the medical school's yearbook, th young medical student won a place for himself in Ph Alpha Gamma, an honorary medical society. He interne in the hospital now known as Bellevue in New Yor City and moved to Winona in 1905.

He joined the Army at the time of the Mexica border trouble and was a captain in the medical corp in 1916 when his marriage to Ann Ahern of Winona took place at Fort Snelling. He accompanied the 131s Infantry as major in going overseas.

In 1923 Dr. Schaefer was elected alderman-at-large, an office he held for twelve years. In 1927, he was named president of the board of aldermen, an office he held for eight years. During this period, many public improvements were carried out.

Dr. Schaefer was a member of the Winona County Medical Society, the Minnesota State Medical Association and the American Medical Association. From 1936 to 1938 he was president of the staff of the Winona General Hospital.

Dr. Schaefer is survived by his wife; one son, Samuel Schaefer, Jr., a graduate student at the University of Michigan; three daughters, Dr. Jane Schaefer, an obstetrician in San Francisco, Mrs. Grayson Bryan of Santa Monica, California, and Sally Ann, at home.

JOHN P. SCHNEIDER

Dr. John P. Schneider, well-known internist of Minneapolis, died June 15, 1950, at the age of seventy-one.

Dr. Schneider was born in Lewiston, Minnesota, April

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The bonds are in denominations of $1,000 each and are secured by taxes levied upon all the taxable real estate and personal property within the District. As you probably realize, such taxes are a claim against the property even ahead of any mortgage. The actual value of the property is difficult to determine since, though the bulk of the population is situated in high-value residential areas (lake shore property is valued at $100 per foot in some cases) practically 90% of the area is rich agricultural land used for dairying, truck and fruit farming. The total debt, however, represents an average of only $34.60 per acre.

We own and are offering, subject to prior sale, bonds of this District returning as much as 2.35% per annum, depending upon the maturity purchased. When you are considering this investment remember that, to an individual in the $10,000 taxable income bracket, a tax-exempt 2.35% income is equivalent to more than 3.50% income subject to federal income taxes. In addition this 2.35% is exempt from present Minnesota State Income Taxes when received by an individual.

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, 1879. He attended the Winona Normal School and e University of Minnesota where he received his medi- l degree in 1906. Following his internship in Minne- olis General Hospital, he practiced in Green Isle, Min- sota, for seven years. He then took postgraduate work Vienna and Berlin before establishing himself in inneapolis. He was one of the co-founders of the collet Clinic in 1920 and was an Assistant Clinical ofessor of Medicine at the University of Minnesota.

Dr. Schneider was a member of the Hennepin County edical Society, the Minnesota State Medical Associa- n and the American Medical Association, the Minne- a Society of Internal Medicine, the Minnesota Acad- y of Science, the Interurban Clinical Society, Sigma Xi, Nu Sigma Nu and the Minneapolis Athletic Club.

Dr. Schneider is survived by his wife, five daughters, Mrs. Francis Reese, Milwaukee, Wisconsin; Mrs. Jerome Speltz, Winona, Minnesota; Mrs. Alfred Speltz, Mrs. Alphonse Walch and Barbara, all of Minneapolis; and three sons, Dr. John of Philadelphia; Dr. Robert of New York, and Paul of Iowa City. He retired from active practice in 1929.

The most important factor in the development of the infant mortality rate is the standard of nutrition of the people and the most important factor in the tuberculosis rate is the standard of overcrowding.—S. Leff, Med. Officer, Feb. 4, 1950—Quoted in *Am. J. Pub. Health,* April, 1950.

✦ Reports and Announcements ✦

FOURTH PAN-AMERICAN CONGRESS ON OPHTHALMOLOGY

Plans are now under way for the Fourth Pan-American Congress on Ophthalmology to meet in Mexico City from January 6 to 12, 1952. Dr. Luis Sanchez Bulnes, Gomez Farias 19, Mexico 4, D.F., is Secretary General.

INTERNATIONAL COLLEGE OF SURGEONS

The International College of Surgeons, United States Chapter, will hold its fifteenth annual assembly and convocation in Cleveland, Ohio, October 31, November 1, 2, 3.

The program will include scientific sessions on subjects in the fields of general surgery; eye, ear, nose and throat surgery; gynecology and obstetrics; urology; and orthopedic, thoracic, plastic and neurological surgery. In addition, an extensive technical and scientific exhibit will be presented. Special entertainment for the doctors' ladies has been planned.

All doctors of medicine interested in surgery and its advancement are invited to attend, and can obtain a program upon request to Arnold S. Jackson, M.D., Secretary, Jackson Clinic, Madison 5, Wisconsin. For hotel reservations, contact Committee on Hotels, International College of Surgeons, U. S. Chapter, 511 Terminal Bldg., Cleveland 13, Ohio.

AMERICAN COLLEGE OF PHYSICIANS

On November 18, the American College of Physicians North Central Regional Meeting will be held in Madison, Wisconsin. Registration will begin at 8:00 a.m., and the meeting will consist of a series of scientific papers presented throughout the day. A scientific exhibit of wide general interest is planned in connection with the meeting.

This gathering will be held in the Wisconsin Union Theater on the campus of the University of Wisconsin. A luncheon will be served in the Wisconsin Union at noon for all registrants wishing to participate.

This postgraduate instructional session is open to all interested Physicians, whether or not they are members of the American College of Physicians. Members of the College are urged to bring along their colleagues as guests.

AMERICAN MEDICAL WRITERS' ASSOCIATION

The seventh annual meeting of the American Medical Writers' Association will be held at the Elks Club, Springfield, Illinois, Wednesday, September 27, during the fifteenth annual meeting of the Mississippi Valley Medical Society. In the afternoon there will be papers by Frank G. Dickinson, Ph.D., Director of the Bureau of Medical Economic Research, American Medical Association and Theodore R. Van Dellen, M.D., Health Editor, Chicago *Tribune*, with appropriate discussions. In the evening Walter C. Alvarez, M.D., Professor of Medicine, Mayo Foundation, Rochester, Minn., and editor of the new publication, *General Practice*, will take over, to be followed by a stag entertainment conducted by the Sagamon County Medical Society.

A program may be secured from the Secretary, Harold Swanberg, M.D., 209-224 W.C.U. Bldg., Quincy, Illinois.

MISSISSIPPI VALLEY MEDICAL SOCIETY

The fifteenth annual meeting of the Mississippi Valley Medical Society will be held at the Elks Club, Springfield, Illinois, September 27, 28, 29 under the presidency of Dr. N. G. Alcock of Iowa City, Iowa, immediate past-president of the Iowa State Medical Society. Over thirty clinical teachers from the leading medical schools will conduct this great postgraduate assembly whose entire program is planned to appeal to general practitioners. There will be over fifty scientific and technical exhibits. No registration fee will be charged and every ethical physician is cordially invited and urged to attend. The entire program and all exhibits will be held in the newly remodeled, air-conditioned Elks Club of Springfield. Program may be obtained from Harold Swanberg, M.D., Secretary, 209-224 W.C.U. Bldg., Quincy, Illinois.

COURSE IN NEUROLOGIC ROENTGENOLOGY

The University of Minnesota announces a continuation course in neurologic roentgenology to be presented at the Center for Continuation Study October 30 to November 4. Distinguished visiting physicians who will participate as faculty members of the course include Drs. Arthur E. Childe, Winnipeg; Philip J. Hodes, Philadelphia; Dabney Kerr, Iowa City; and Knut Lindblom, Stockholm, Sweden. Clinical and full-time members of the staff of the University of Minnesota and Mayo Foundation will complete the faculty for the course.

Presentations on the anatomy and pathology of the central nervous system will be given early in the course. Emphasis will be placed throughout on different techniques available for the roentgen examination of the central nervous system. Correlation of clinical and roentgenologic findings will be emphasized.

SCOTT-CARVER COUNTY SOCIETY

Election of officers highlighted the meeting of the Scott-Carver County Medical Society in New Prague on June 7.

Dr. E. H. Simons, Chaska, was elected president; Dr. Richard F. Kline, Montgomery, vice president, and Dr. E. Roger Rynda, New Prague, secretary-treasurer.

Dr. H. Nilson, Mankato, discussed the educational campaign being carried on to point out the dangers of socialized medicine.

(Continued on Page 736)

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(Continued from Page 734)

NORTHERN MINNESOTA MEDICAL ASSOCIATION

The annual meeting of the Northern Minnesota Medical Association will be held at Bemidji on Friday and Saturday, September 8 and 9. The program for the meeting is as follows:

Friday, September 8

"Some Aspects of Abdominal Pain in Children"—Dr. Allan J. Hill, Minneapolis.

"New Developments in Antibiotics"—Dr. Wendell H. Hall, Minneapolis.

"The Significance of the Intestinal Polypoid Lesion"—Dr. Harry M. Weber, Rochester.

"The Surgical Management of Common Pulmonary Problems"—Dr. Nathan K. Jensen, Minneapolis.

"Fracture Clinic"—Dr. Daniel J. Moos, Dr. Maynard C. Nelson and Dr. Earl C. Henrikson, Minneapolis.

Banquet, 7:00 p.m. Speaker: Roy E. Dunn, Representative, 50th District.

Saturday, September 9

"Clinico-Roentgen-Pathological Conference"—Dr. E. L. Tuohy, Dr. H. G. Moehring and associates.

Officers of the association, who will be in charge at the meeting, are Dr. W. J. Deweese, Bemidji, president; Dr. George Sather, Fosston, vice president, Dr. C. L. Oppegaard, Crookston, secretary-treasurer.

Woman's Auxiliary

A MESSAGE FROM THE NEW PRESIDENT

The annual session held in Duluth, June 12 to 15, was not only very successful from the standpoint of Auxiliary work, but it was one of the most beautifully planned and conducted conventions it has been my good fortune to attend. The past State Auxiliary president and her convention chairman, together with their committee members are to be congratulated.

It is the plan of the new administration that Auxiliary work shall be carried on, as always, to promote in every way all plans supporting and furthering the national Auxiliary program. I know that all county presidents will carry back to their groups good reports of the meetings and to every county member I make a plea for help and sympathetic understanding. Again a group of outstanding and capable women are serving as Board members, but unless each county member and our members at large are sincerely interested and active, we cannot hope for a successful year. Board members can plan and advise, but it is to the individual member we must look for promotion of Auxiliary work.

Public relations is of first importance. The war against government controlled medicine and insurance must go on. More and more of our fellow citizens

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must be told the truth and understand the danger to our American way of life which a small group is trying to force upon us.

We are happy that plans for two Health Days, to take place soon, are well under way. The programs which have already been given have been very successful and have been very well received. Health Days can mean so much in promoting understanding among our fellow citizens in all walks of life and certainly they are of unlimited educational value. We do hope that several more counties will promote Health Day programs during the year.

Vacation time is here, but may I ask each county president to keep on the alert, ascertaining the needs of her group and, too, the needs of her own community, as far as educational campaigns are concerned. If you have articles of interest, please send them to the Chairman of MINNESOTA MEDICINE, Mrs. Benjamin Souster, 1333 Bohland Place, Saint Paul 5, Minnesota. I do not refer to personal items, but to those which might be of help in planning programs for county work starting in the fall. Let us give unselfishly of our time and our effort to make this year one of which we can be proud and one which will be gratifying to the Minnesota State Medical Association.

President, Woman's Auxiliary

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✦ Of General Interest ✦

A voluntary committee composed of fellows who have served under Dr. George E. Fahr have established a **George E. Fahr Lectureship in Cardiology** at the University of Minnesota Medical School. Dr. Fahr retired from his position as full-time supervisor of the University medical service at Minneapolis General Hospital on June 15, 1950, after some twenty-eight years of service in that capacity. A dinner was held in honor of Dr. and Mrs. Fahr at the Campus Club in the Coffman Memorial Union at which the lectureship which has already reached $8,000, was presented to the Medical School. It is the purpose of the committee in charge of raising funds, of which Dr. Arthur Kerkoff is chairman, to raise a considerably larger fund to provide a suitable income for the purposes of a lectureship. Contributions made payable to the George E. Fahr Lectureship or to the Minnesota Medical Foundation, earmarked for the lectureship, may be sent to Dr. George N. Aagaard, secretary-treasurer of the Foundation, 3411 Powell Hall, University of Minnesota, Minneapolis 14, Minnesota.

* * *

Dr. Paul J. Bilka has opened offices at 500 Physicians and Surgeons Building, Minneapolis, for the practice of rheumatology. Dr. Bilka was graduated from Columbia University Medical School and served an internship and assistant residency at the Hartford Hospital, Connecticut. He was discharged from the Army as a captain in January, 1947. He recently completed a fellowship at the Mayo Clinic.

* * *

Open house was held on June 11 at the offices of **Dr. I. W. Steiner** and **Dr. W. O. Finkelnburg,** Winona, to announce completion of remodeling and refurnishing the offices. The redecorating work included increasing the number of rooms, installing new lighting and new furniture.

* * *

Dr. Vincent T. M. Ryding, Howard Lake, closed his offices late in June and left on June 27 for Dallas, Texas, to become affiliated with the Methodist Hospital of that city. He was scheduled to be replaced at Howard Lake on July 1 by Dr. William Thomas of Minneapolis, who had purchased Dr. Ryding's equipment.

* * *

After being asociated with the Bratrud Clinic in Thief River Falls since January, 1947, **Dr. Alfred S. Nelson** left on June 8 for Baltimore, Maryland, where he had accepted an appointment as resident in internal medicine at Union Memorial Hospital.

* * *

It was announced on June 8 that **Dr. Donald Bucher**, of Sioux Falls, South Dakota, planned to begin practice in Starbuck about July 15.

Dr. J. J. Coll, Duluth, was elected president of the Minnesota Society for the Study of Diseases of the Heart and Circulation at a meeting in Minneapolis on June 3 and 4.

* * *

Dr. Bernard S. Nauth, a member of the staff of the Winona Clinic for the last five years, announced on June 10 that he had resigned to enter private practice in Bemidji. He said that he planned to leave for Bemidji sometime before July 15. Dr. Nauth entered the Winona Clinic as a staff member in 1942, practiced for several months before joining the Army, then returned to Winona after his discharge from service.

* * *

Miss Olive V. Seibert, Minneapolis, director of medical publications at the Bruce Publishing Company, Saint Paul, and well known to the medical profession throughout the state, was elected president of the Quota Club International at its annual convention at Mackinac Island, Michigan, in June.

Quota Club International has 226 chapters in the United States, Canada, Australia and Mexico, and an active membership of over 7,000. Members are selected from women executives of a community, one from each business or professional activity. Quota is organized to advance the interests of women, cultivate friendship and serve country and community. Miss Seibert served Quota International as lieutenant governor, district governor, director, third vice president and first vice president before being elected president.

* * *

Dr. Julian F. DuBois, Sauk Centre, secretary of the Minnesota State Board of Medical Examiners, was elected a member of the National Board of Medical Examiners at its recent annual meeting. This is the first time a member of our state board has been honored with a membership in the national board.

* * *

The Colvin Memorial Surgical Fund, to carry on a research and teaching program at Ancker Hospital, Saint Paul, has been established in memory of Dr. Alexander R. Colvin, who died on March 22, 1948. Dr. Colvin was associated with Ancker Hospital for over fifty years and was chief of the surgical services at the hospital for more than thirty years.

Dr. Wallace P. Ritchie is director of the fund, and members of the advisory committee include Dr. E. M. Jones, chairman, Dr. Thomas E. Broadie, Dr. Ivan D. Baronofsky and Dr. Logan Leven. Contributions to the fund have so far been made by doctors who practice at Ancker but will be accepted from any who are interested in the welfare and

(Continued on Page 740)

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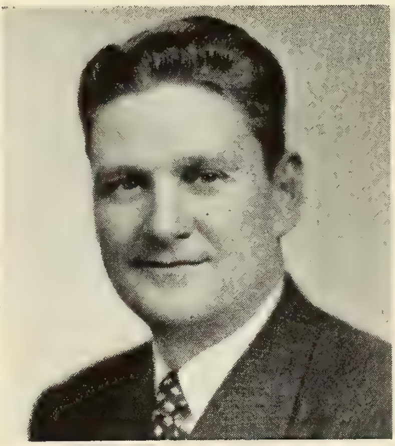

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(Continued from Page 738)

progress of medical teaching and research at the hospital. Contributions, which are tax deductible, should be made payable to the Colvin Memorial Surgical Fund and sent to Dr. Thomas E. Broadie, Superintendent, Ancker Hospital, Saint Paul.

* * *

Dr. R. H. Wilson has been named by the Winona city council to fill the unexpired term of the late Dr. Samuel Schafer as city health officer. Dr. Wilson's term expires in April, 1952.

* * *

Dr. Martin O. Nesheim, Emmons, was among upper Midwest physicians who attended a continuation course in proctology at the University of Minnesota May 22 through 27.

* * *

A farewell reception was given by employes of the Willmar State Hospital on June 21 in honor of **Dr. and Mrs. Stanley B. Lindley** and family. About 200 persons gathered to say farewell to Dr. Lindley, who has been superintendent of the Willmar State Hospital for the past six and one-half years. Dr. Lindley planned to leave the following week to become a chief physician at the Veterans Hospital in Knoxville, Iowa. At his new post he expects to devote most of his time to research and clinical work in psychiatry.

* * *

Dr. John Adams, who for the past ten years has been with the pediatrics department of the University of Minnesota Medical School, will spend six weeks in Europe visiting various medical centers before taking up his duties as director of the pediatrics department at the University of California Medical School in Los Angeles. Dr. Adams will read a paper on virus pneumonia at the sixth International Pediatrics congress o be held at Zurich, Switzerland in July. Mrs. Adams, who is also a pediatrician, will accompany Dr. Adams.

* * *

As part of the program being developed by **Dr. Ralph Rossen,** state mental health commissioner, his staff will be augmented by Dr. Frances Barnes, beginning July 1, who will direct pediatric care in state institutions caring for children. In addition, Dr. R. H. Engel, who has recently come to this country from Germany and who has specialized in convulsive disorders of children, has been named clinical pediatrics director at the Cambridge State School and Hospital, and Dr. H. H. Brul has been placed in charge of the pediatrics service at the Minnesota School and Colony at Faribault. The two state institutions have already been allied with the University Medical School, receiving part-time services from four senior staff members and four residents of the University Hospital.

* * *

(Continued on Page 742)

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Surgical technic, Surgical Anatomy and Clinical Surgery, four weeks, starting July 10, August 7, September 11.
Personal Course in General Surgery, two weeks, starting September 25.
Surgery of Colon and Rectum, one week, starting September 11.
Esophageal Surgery, one week, starting October 16.
Breast and Thyroid Surgery, one week, starting October 2.
Thoracic Surgery, one week, starting October 9.
Gallbladder Surgery, ten hours, starting October 23.
Fractures and Traumatic Surgery, two weeks, starting October 9.
Basic Principles in General Surgery, two weeks, starting September 11.
GYNECOLOGY—Intensive Course, two weeks, starting September 25.
Vaginal Approach to Pelvic Surgery, one week, starting September 18.
OBSTETRICS—Intensive Course, two weeks, starting September 11.
MEDICINE—Intensive General Course, two weeks, starting October 2.
Gastro-enterology, two weeks, starting October 16.
Gastroscopy, two weeks, starting July 17, September 25.
DERMATOLOGY—Formal Course, two weeks, starting October 16.
Informal Clinical Course every two weeks.
UROLOGY—Intensive Course, two weeks, starting September 25.
Cystoscopy, Ten Day Practical Course, every two weeks.

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(Continued from Page 740)

Dr. Orien B. Patch, Duluth, has opened new offices in the Providence Building, 332 West Superior Street, Duluth. Dr. Patch restricts his practice to otolaryngology.

* * *

Dr. Joseph L. Garten, Minneapolis, has moved his offices to 308 Doctors Building, where he is conducting his practice of ophthalmology and otolaryngology. He was formerly located in the Medical Arts Building.

* * *

Announcement was made on June 24 that **Dr. William A. Black**, New Ulm, had been certified by the American Board of Surgery.

* * *

Three papers on cortisone were presented by **Mayo Clinic** staff members at the recent meeting of the AMA in San Francisco. Dr. A. R. Barnes presented a paper written in collaboration with Drs. H. L. Smith, C. H. Slocumb, H. F. Polley and Philip S. Hench. Dr. Hench presented two other papers on the status of cortisone and related compounds in general medicine and in rheumatic diseases.

* * *

The marriage of **Dr. Edward A. Pasek**, Carlton, to Miss Marjorie Jeanne Gradine, formerly of Superior, Wisconsin, took place at Cloquet on May 27.

* * *

Dr. James H. Walston left Clarkfield about June 14 for Grattinger, Iowa, where he planned to establish a private practice. Dr. Walston practiced in Clarkfield for one year.

* * *

Dr. Gordon Erskine and **Dr. C. R. Ferrell**, Grand Rapids, have moved into their newly completed office building. The one-story modern structure contains three suites of offices, including a dental suite.

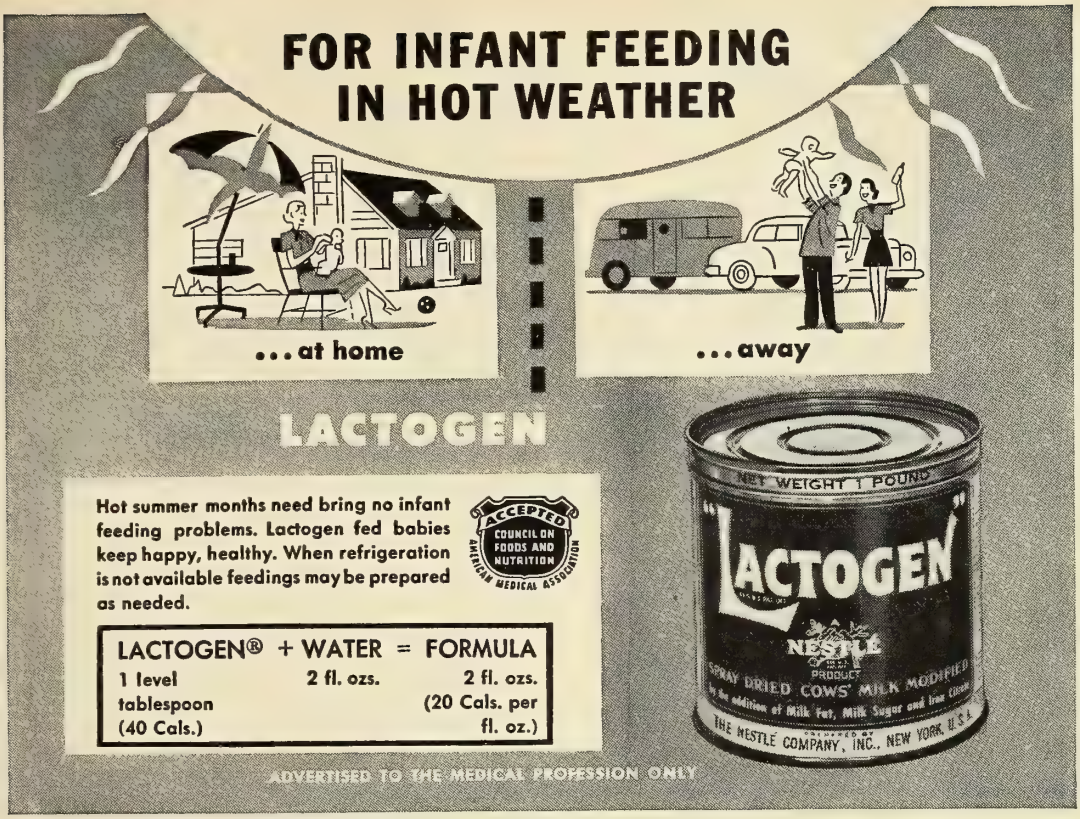
* * *

Two former Rochester physicians, Dr. Albert M. Snell and Dr. Harry A. Wilmer, have become associates in the Palo Alto Clinic at Palo Alto, California. Dr. Snell, a former Mayo Foundation professor of Medicine, is an associate in the clinic's department of internal medicine. Dr. Wilmer, a former Mayo Foundation fellow, is an associate in the department of neurology and psychiatry.

* * *

Dr. Wallace H. Cole, Saint Paul, director of the division of orthopedic surgery at University of Minnesota Medical School, has accepted appointment to the newly created position of chief of orthopedic service at Elizabeth Kenny Institute for polio patients, in Minneapolis.

The appointment, effective immediately, was announced by Dr. E. J. Huenekens, chief of staff at Kenny Institute and national medical director of the Sister Elizabeth Kenny Foundation, which maintains headquarters offices in Minneapolis. Dr. Huenekens is also clinical professor of pediatrics at the University of Minnesota.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Dr. Cole, who for more than a year has been a onsulting orthopedist at Kenny Institute, was among the medical men who originally observed the work of Sister Kenny when she first came to Minneapolis and Saint Paul in 1940.

* * *

Dr. R. F. Hedin, of the Interstate Clinic in Red Wing, was a speaker at a meeting of the St. Croix and Pierce Counties Medical Society in Ellsworth on June 13. He spoke on "Hand Infections."

* * *

Eighty physicians who interned at **St. Mary's Hospital,** Duluth, between 1901 and 1950 held a reunion breakfast in Duluth on June 13. Dr. R. P. Buckley, hospital chief-of-staff, presided at the gathering.

* * *

It was announced in June that **Dr. J. T. Boswell** would begin practice in Wanamingo early in July. Dr. Boswell recently completed his internship at the U. S. Naval Hospital at Great Lakes, Illinois.

* * *

Dr. Samuel H. Boyer, Sr., Duluth, was presented with the distinguished service award of the Minnesota State Medical Association at the association's meeting in Duluth on June 13.

A graduate of the University of Pennsylvania Medical School, Dr. Boyer first came to Duluth in 1891. During his years there he has been active both in politics and in the pioneering medical practice in the area. He is a former member of the state board of health and past president of the Minnesota State Medical Association. A son, Dr. Samuel H. Boyer, Jr., is now associated with him in practice in Duluth.

* * *

Dr. Reuben F. Erickson, mayor of Edina, filed on June 17 as a candidate for the Republican nomination for Congress in the third district. A graduate of the University of Minnesota Medical School in 1926, Dr. Erickson is president-elect of the Hennepin County Medical Society. Always interested in politics, he was a member of the 1941 session of the state legislature from the 36th district.

* * *

Dr. C. G. Nelson, Harmony, spent June and July at the University of Iowa, taking a postgraduate course in medicine. During his absence, Dr. O. M. Rotnem of Harmony conducted his practice.

* * *

Announcement was made early in June that **Dr. J. A. Guy** would begin practice in New London on July 1.

* * *

Four Mayo Clinic physicians received certificates of merit from the University of Minnesota at a ceremony in the Coffman Memorial Union on June 6. The four were Dr. John L. Crenshaw, Dr. George B. Eusterman, Dr. James C. Masson and Dr. Arthur H. Sanford.

* * *

Dr. D. E. Greene, formerly of David City, Nebraska, has become affiliated with the Starekow Clinic

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in Thief River Falls. A graduate of the University of Nebraska Medical School in 1943, Dr. Greene interned at the University Hospital in Omaha, then served for two years in the Army.

* * *

The marriage of **Dr. Hubert Theissen** and Miss Armoryl Keeney, both of Minneapolis, took place in Minneapolis on May 20. Dr. Theissen, a graduate of Marquette University Medical School, is affiliated with St. Mary's Hospital, Minneapolis.

* * *

Dr. F. L. Bregel, St. James, was elected president of the Redwood-Watonwan County Medical Society at a meeting in New Ulm on May 23. Other officers named were Dr. O. B. Fesenmaier, New Ulm, vice president, and Dr. Bradley Kusske, New Ulm, secretary-treasurer.

* * *

Minnesota's mental health program was discussed by **Dr. F. J. Braceland,** head of the psychiatry section at the Mayo Clinic, at a meeting of the Methodist Men's Club in Rochester on June 2.

* * *

Dr. Grant F. Hartnagel, of the Interstate Clinic in Red Wing, attended a one-week session of the International Congress on Obstetrics and Gynecology in New York late in May.

* * *

Dr. Harvey Nelson, Minneapolis, was elected president of the Minnesota Alumni Association at a meeting in Minneapolis on May 20.

* * *

Dr. F. M. MacDonald arrived in Nashwauk on May 15 to begin medical practice at the Itaska Clinic. He recently returned from Germany, where he had been with the Army of Occupation for two years.

* * *

After a year of practice in Spring Valley, **Dr. E. P. Engels** left on May 14 to take postgraduate work in medicine at the University Hospitals, Minneapolis. He was replaced at Spring Valley by Dr. W. H. Peterson, formerly of Owatonna.

* * *

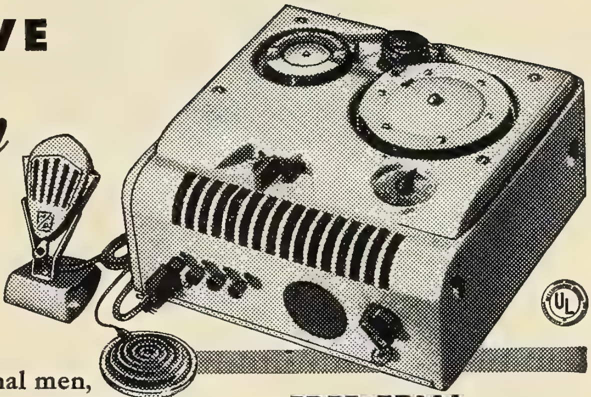
Dr. Christopher Graham was again honorary chairman of the Rochester Art Festival in Rochester on May 20.

* * *

Eight persons trained in **foreign medical schools** have qualified to practice medicine in Minnesota, it was announced on May 17. Fourteen others are now taking twelve months of graduate study in clinical medicine in approved hospitals. This progress has been made since Minnesota modified its licensing regulations for displaced physicians in February, 1949. Only one applicant for license has been rejected by the state board of medical examiners.

* * *

Dr. Howard L. Horns, assistant dean of the University of Minnesota Medical School, was the principal speaker at the annual spring dinner meeting of the St. Thomas Aesculapian Club in Saint Paul on May 17.



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Dr. Herbert F. Plass, Minneapolis, representing the Hennepin County Medical Society, discussed the society's attitude toward socialized medicine at a meeting of the Commonwealth Club in Minneapolis on May 19.

* * *

After twenty-one years of practice in Houston, **Dr. W. W. Canfield** left on May 14 to become a staff member of the St. Peter State Hospital.

* * *

The transformation of an eighty-two-year-old house into a modern medical office was completed in Le Sueur in June. The entire first floor of the house has been remodeled and redecorated to form a suite of medical offices for **Dr. N. N. Sonnesyn** of Le Sueur. The offices now include a reception room, examining room, x-ray room, emergency treatment room, private office and business office.

* * *

Principal speaker at a meeting of the Saint Paul Surgical Society on May 17 was **Dr. Richard L. Varco,** of the department of surgery of the University of Minnesota. Dr. Varco discussed carcinoma of the lung.

* * *

Dr. John Van Duyn, formerly of Duluth, has become surgeon for the Community Health Center and hospital in Two Harbors. He succeeds Dr. Joseph Bloom, who has moved to Duluth to conduct his practice.

Physicians named to membership in the "**Fifty Club**" at the annual meeting of the Minnesota State Medical Association in Duluth in June include the following:

Dr. Samuel Amberg, Rochester; Dr. J. B. Clement, Lester Prairie; Dr. W. H. Condit, Dr. A. E. Booth, Dr. Annah Hurd, Dr. James F. Kennedy, Dr. C. M. Oberg, Dr. J. W. Olson, Dr. S. M. White, Dr. A. E. Wilcox, all of Minneapolis; Dr. W. A. Coventry, Dr. A. T. Laird, Dr. C. W. Taylor, all of Duluth; Dr. Oscar Daignault, Benson; Dr. J. P. Freeman, Glenville; Dr. E. C. Gaines, Buffalo Lake; Dr. F. D. Gray, Marshall; Dr. A. D. Haskell, Alexandria; Dr. F. R. Huxley, Faribault; Dr. G. P. Kirk, East Grand Forks; Dr. F. M. Manson, Worthington; Dr. G. R. Matchann, Dr. F. J. Plondike, both of Saint Paul; Dr. O. W. Parker, Moose Lake; Dr. E. A. T. Reeve, Elbow Lake; Dr. T. F. Rodwell, Mahnomen; Dr. M. W. Smith, Red Wing; Dr. F. P. Strathern, St. Peter, and Dr. W. H. Valentine, Tracy.

* * *

It was announced on June 22 that **Dr. I. G. Davis,** Rushford, had sold his medical practice and would retire on July 1 because of ill health. Dr. Davis has practiced in Rushford for thirty-one years. A graduate of Rush Medical College, he interned at Lutheran Hospital, La Crosse, Wisconsin. He served in the Army during World War I.

Dr. Davis is succeeded by **Dr. Myron J. Woltjen,** who recently completed his internship at Asbury Hospital, Minneapolis. He is a graduate of the University of Minnesota Medical School.

* * *

HOSPITAL NEWS

Opening ceremonies for the new **Swift County-Benson Hospital** were held at Benson on June 18. Principal speaker at the event was Dr. Walter Kvale, consultant in the division of medicine at the Mayo Clinic. Ceremonies also included a victory dinner, a band concert and presentation of the keys for the hospital.

* * *

Fourteen staff members of **St. Barnabas Hospital**, Minneapolis, formed a special band, the "Barnabas Barn Burners," to entertain their fellows at the annual hospital picnic in early June. Costumes for the players were green surgical caps and white operating-room shirts and trousers. Audience response to their efforts was enthusiastic.

* * *

BLUE CROSS-BLUE SHIELD NEWS

The Blue Shield Board held its annual meeting in Duluth in conjunction with the Minnesota State Medical Association's annual meeting, June 12-14. All officers were re-elected. They include: Dr. Olof I. Sohlberg, Saint Paul, president; Dr. Richard R. Cranmer, Minneapolis, vice president; Dr. C. A. McKinlay, Minneapolis, secretary; and Dr. W. A. Coventry, Duluth, treasurer.

Re-elected to the board of directors for three years were Dr. Coventry; Dr. E. M. Hammes, Saint Paul; Dr. P. G. Hoeper, Mankato, and Dr. McKinlay.

Blue Shield enrollment totalled 332,288 as of April 30, and Minnesotans received over half-a-million dollars in Blue Shield benefits during the first four months of this year. By April 30, benefits to Blue Shield subscribers this year amounted to $580,645, of which $536,312 was for medical-surgical care subscribers received in hospitals, $43,383 for care received in doctors offices.

Of the total 14,422 claims submitted during this four-month period, 11,524 were incurred by subscribers in hospitals, 2,849 in doctors' offices, and 49 in homes, representing 17,860 medical-surgical services in all.

During April, Blue Shield benefits totalled $169,512 for 4,133 claims submitted, representing 5,181 Blue Shield services. Persons in the lower income group, who receive unlimited benefits under Blue Shield, presented 1,267 or 30.7 per cent of the total claims paid during April. During the first four months of this year, 4,513 unlimited subscriber claims were paid, representing 31.3 per cent of the total number of claims paid.

Participating Blue Shield doctors provided services for 3,963 or 96 per cent of the claims paid in April, and for 13,818 or 96 per cent of the claims paid during the first four months of 1950.

Over 13,000 Minnesotans enrolled in Blue Cross during April, making a total Blue Cross enrollment of 1,017,602 in Minnesota. More than a million-and-a-half persons enrolled in the 90 Blue Cross hospital service plans during the first three months of this year, making this the second highest quarterly enrollment in Blue Cross history. Over 37,444,000 persons were enrolled in Blue Cross at the end of March, representing 24 per cent of the United States population and 21 per cent of the Canadian people.

National enrollment in Blue Shield plans during the first quarter of this year has not been reported as yet.

The wise doctor has always considered his patient as a man or woman who is suffering from, say, a growth or a tuberculous infection, rather than the uninteresting container in which some morbid process happens to be placed. Norman B. Capon, M.D., F.R.C.P., *Brit. M.J.*, April 15, 1950.

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

RACTICE OF MEDICINE. Fifth Edition. Jonathan Campbell Meakins, C.B.A., M.D., LL.D., D.Sc. Formerly Professor of Medicine and Director of the Department of Medicine, McGill University; formerly Physician-in-Chief, Royal Victoria Hospital, Montreal; formerly Professor of Therapeutics and Clinical Medicine, University of Edinburgh; Fellow of Royal Society of Edinburgh; Fellow of Royal Society of Canada; Fellow of the Royal College of Physicians, London; Fellow of the Royal College of Physicians, Edinburgh; Honorary Fellow of the Royal College of Surgeons, Edinburgh; Fellow of the Royal College of Physicians, Canada; Fellow of the American College of Physicians; Honorary Fellow of the Royal Society of Medicine. 1,558 pages. Illus. Price $13.50, cloth. St. Louis: C. V. Mosby Co., 1950.

HE MERCK MANUAL OF DIAGNOSIS AND THERAPY. Eighth Edition. 1,592 pages. Illus. Price $4.50, regular edition, $5.00, thumb indexed edition. Rahway, N. J.: Merck & Co., Inc., 1950.

SSENTIALS OF OPHTHALMOLOGY. Roland I. Pritikin, M.D., F.A.C.S., F.I.C.S., Eye Surgeon, Rockford Memorial, Winnebago County and Swedish-American Hospitals; Consulting Ophthalmologist, St. Anthony Hospital, Rockford, Hospital. 561 pages. Illus. Price, $7.50, cloth. Philadelphia: J. B. Lippincott Company, 1950.

AINTS, SINNERS AND PSYCHIATRY. Camilla M. Anderson, M.D. Assistant Clinical Professor of Psychiatry, University of Utah. 206 pages. Price $2.95, cloth. Philadelphia: J. B. Lippincott Company, 1950.

HE MASK OF SANITY. (Second edition). Hervey Cleckley, M.D., Professor of Psychiatry and Neurology, University of Georgia School of Medicine, Augusta, Ga. 569 pages. Price, $6.50, cloth. St. Louis: C. V. Mosby Co., 1950.

LINICAL ELECTROCARDIOGRAPHY. Francis F. Rosenbaum, M.D. Assistant Clinical Professor of Medicine, Marquette University School of Medicine; Staff, Milwaukee County Hospital; Associate Staff, Columbia Hospital; Adjunct Staff, Milwaukee Children's Hospital; Cardiac Consultant and Attendant, Cardiac Clinic, Milwaukee Children's Hospital, Milwaukee, Wisconsin; Edited by Henry A. Christian, A.M., M.D., LL.D., Sc.D. (Hon.), M.A.C.P., Hon.F.R.C.P.(Can.), D.S.CM.(A.M.A.). (Reprinted from Oxford Loose-Leaf Medicine with the same page numbers as in that work.) 200 pages. Illus. Price, $4.50, cloth. New York: Oxford University Press, 1950.

LINICAL LABORATORY METHODS AND DIAGNOSIS. By R. B. H. Gradwohl, M.D., Director of the Gradwohl School of Laboratory Technique, St. Louis, Mo. 4th Edition, 3275 pages. Price $40.00. St. Louis: C. V. Mosby Company, 1948.

This three-volume work on "Clinical Laboratory meth- ds and Diagnosis" is a fourth edition of the original ingle volume textbook of the same name on "Laboratory rocedures with their Interpretation," later enlarged to wo volumes, to which has been added in the present edi- ion, a third dealing entirely with medical parasitology.

The author is well known among laboratory workers, ot so much as a pathologist, but as a successful roprietor of a widely advertised school, established to rain people who wish to work as technical assistants and chnicians in the clinical laboratory. The first edition as published in 1935, presumably as an outgrowth of a

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compendium on clinical laboratory methods, specially prepared for the use of the students in the training school and, as such, represented a compilation of techniques and procedures employed in the contemporary clinical laboratories and found in textbooks of laboratory diagnosis and clinical pathology, and in current technical journals.

Naturally, a number of methods and procedures described are obsolete or not in current use, and merely help to swell the volume, making it appear more imposing, and adding to its cost. Therefore, it is the reviewer's opinion that the first and second volumes might have been made more useful if the obsolete and discarded methods and procedures had been omitted and references thereto dropped.

Illustrations are plentiful. A majority of them are copied from other publications, and are so indicated. The original photographs and drawings are not impressive.

The present edition has been thoroughly revised, rewritten in many instances, and new materials have been added. This is particularly evident in chapters on blood chemistry, hematology, blood groups and transfusion, bacteriology, toxicologic technique, crime laboratory methods, and electrocardiography. The third volume, devoted to parasitology and tropical medicine, by Pedro Konri, Professor of Parasitology of the Faculty of Medicine, Havana University, Havana, Cuba, represents a complete treatise on medical parasitology, and probably ranks as one of the most comprehensive and best illustrated on medical parasitology. It is a pity that this volume cannot be purchased without the burden of the other two.

In size, the book is the largest ever attempted among the textbooks of clinical laboratory procedures and diagnosis, and covers the field of medical laboratory diagnosis more profusely than any in print in the English language. It may well be added as a reference in the library of a clinical laboratory, as well as in general medical libraries.

Kano Ikeda, M.D.

BRUCELLOSIS (UNDULANT FEVER): CLINICAL AND SUBCLINICAL. By Harold J. Harris, M.D., F.A.C.P., with the assistance of Blanche L. Stevenson, R.N. 544 pages. 111 illustrations—12 in color. Price $10.00. 2nd Edition, revised and enlarged. New York; Paul B. Hoeber, Inc., 1950.

This book deals with the author's experiences in 700 cases of brucellosis supplemented by other information based upon other cases in the literature. It is an enlarged and revised edition of the previous volume published in 1941. There are 544 pages and 111 illustrations, including 12 colored plates, which are interspaced in the reading matter to bring the points discussed more clearly home.

A cursory glance through the text reveals a foreword, eleven chapters, and a large bibliography which is not complete.

The foreword is written by Walter M. Simpson, M.S., M.D., F.A.C.P.

Chapter I—Introduction. Deals with the history, nomenclature, and definition of brucellosis.

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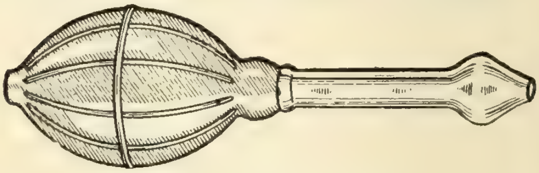

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Chapter II—Etiology. Discusses the bacteriology, morphology, serology, and other characteristics of the three known species bringing out the fact that knowledge is still far from complete as to the pathogenicity of the three species for various animals.

Chapter III—Epidemiology. Concerns itself with the infectiousness, methods of transmission, and the incidence of brucellosis in the United States and in other parts of the world.

Chapter IV—Pathology. Bears out the author's statement that because of the comparatively few deaths from brucellosis most observers have had to content themselves with operative findings, radiographic changes and clinical observations to study pathology. An attempt is made to show that the disease affects every organ in the body. The relationship of brucellosis and Hodgkin's disease is also discussed.

Chapter V—Symptomatology. In this chapter the author states that the only symptom common to all cases is fatigue. Numerous case histories of the disease with marked emphasis on the mimicry of brucellosis with so many other diseases.

Chapter VI—Diagnosis. This brings out at length the difficulties encountered in diagnosis. A positive blood culture is the only true method of diagnosis. In all patients, a suspicion of the disease should be entertained and the reliance upon cultures, agglutination reactions, skin tests, opsonocytophagic tests, and occasional biopsy of lymph gland, and their interpretation will aid in the diagnosis of latent and chronic cases. The author attaches great significance to the opsonocytophagic test as a prognostic aid in the treatment.

Chapter VII—Psychologic Studies in Chronic Brucellosis.

Chapter VIII—Prognosis points out the fact that brucellosis is not a self limited disease, and one cannot say a patient is cured because of the spontaneous remissions and exacerbations of the disease. It demonstrates the low mortality of 3.4 per cent among the cases reported and speculates over the actual morbidity of the disease.

Chapter IX—Treatment. Discusses the rôle of rest, diet, psychotherapy, diathermy, x-ray and neoarsphenamine. Results of combined sulfadiazine and streptomycin therapy, the transfusion of immune blood, of antisera, and some information on the use of newer antibiotics such as aureomycin and chloromycetin are discussed. The author spends a great deal of space on Brucella antigen therapy and places a great deal of value on its use.

Chapter X—Prophylaxis. Stresses the fact that pasteurization of milk and the removal of infected animals will do a great deal. Some speculations on immunizations in individuals are also discussed.

Chapter XI—Addenda. The newer aspects of brucellosis in relation to other diseases are described, and a more thorough discussion on aureomycin and chloromycetin, bringing it up to date, is included.

The book is a thorough, detailed treatise on brucellosis and covers the latest diagnostic methods, prognosis, prophylaxis, and treatment in concise terms. It is well written and is recommended to those who have any interest in brucellosis.

James Bellomo, M.D.

Classified Advertising

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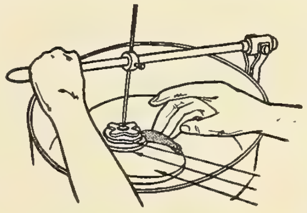

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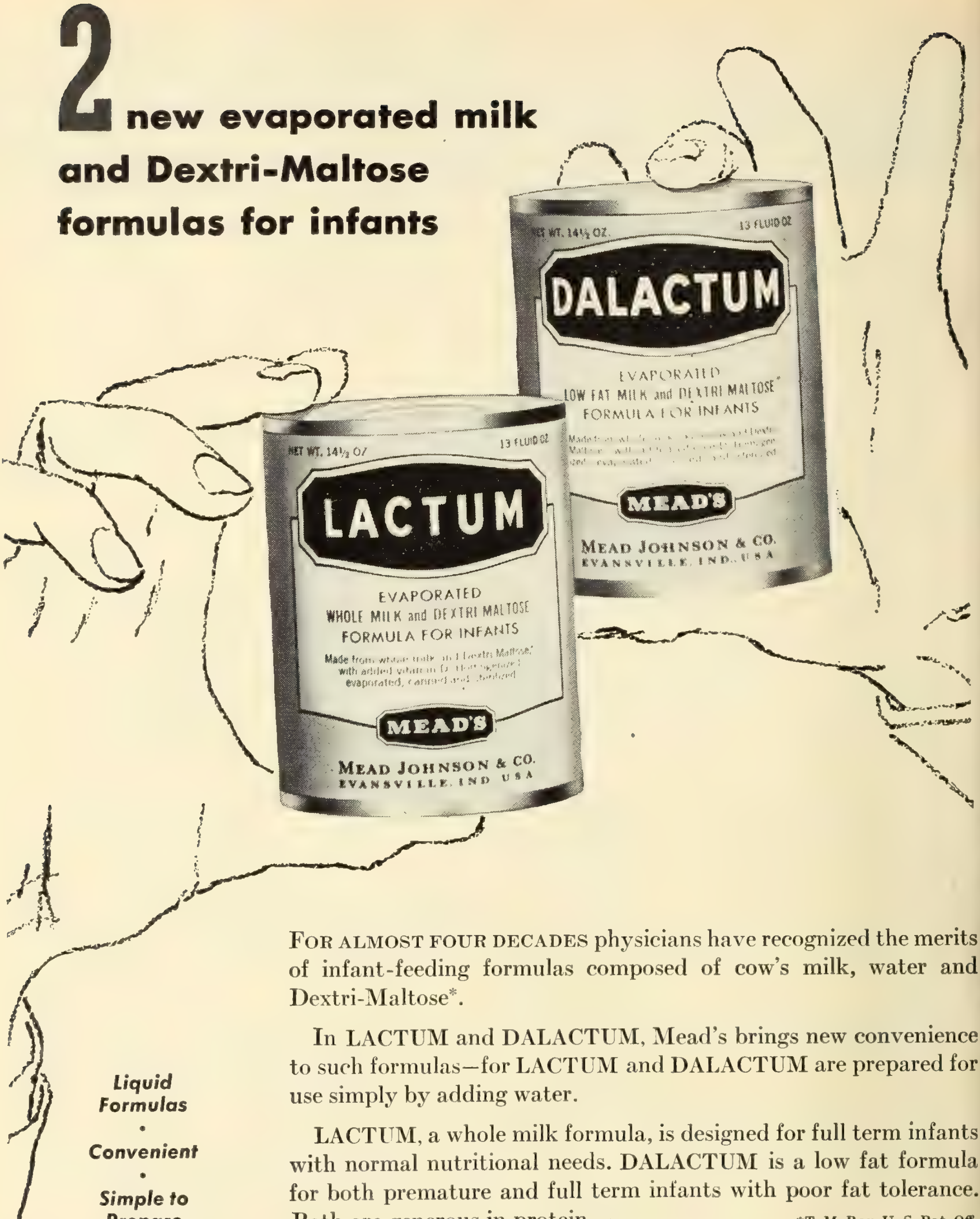
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Contents of MINNESOTA MEDICINE copyrighted by Minnesota State Medical Association, 1950

Entered at the Post Office in Saint Paul as second class mail matter. Accepted for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized July 13, 1918.

MINNESOTA MEDICINE

OFFICIAL JOURNAL OF THE MINNESOTA STATE MEDICAL ASSOCIATION

Published by the Association under the direction of its Editing and Publishing Committee

Office of Minnesota State Medical Association,
493 Lowry Medical Arts Bldg., Saint Paul 2, Minnesota.

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Annual Subscription—$3.00. Single Copies—$0.40. Foreign and Canadian Subscriptions—$3.50.

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Classified advertising—ten cents a word; minimum charge, $2.00. Remittance should accompany order.

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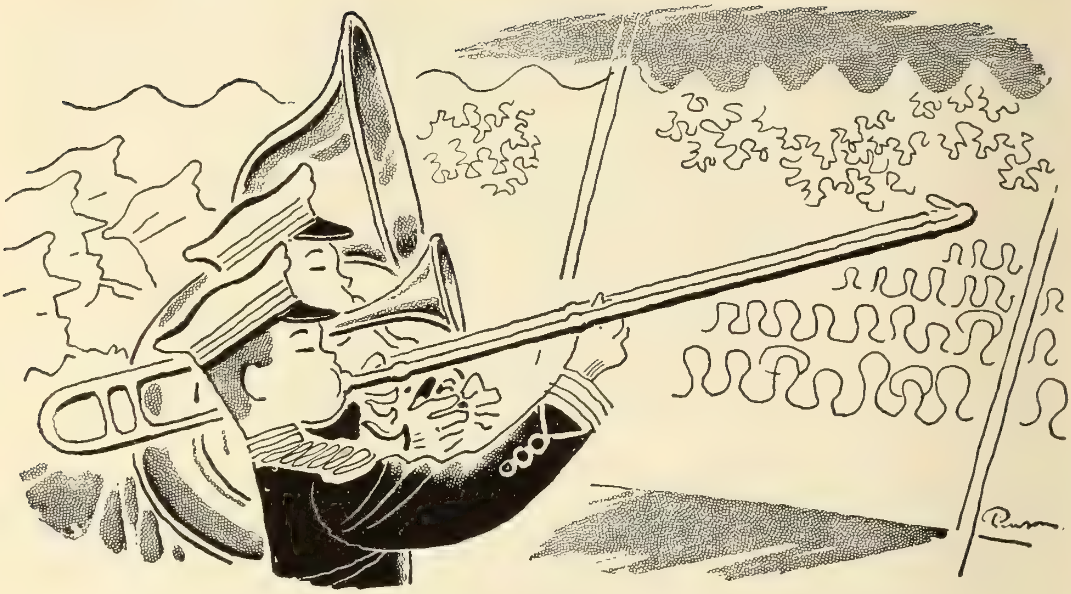

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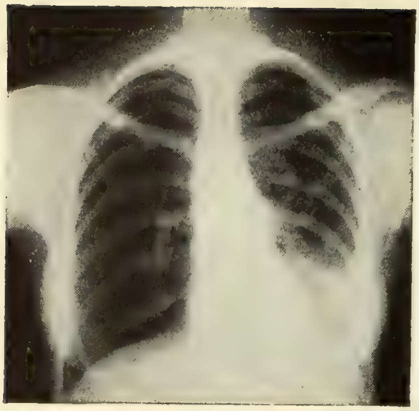

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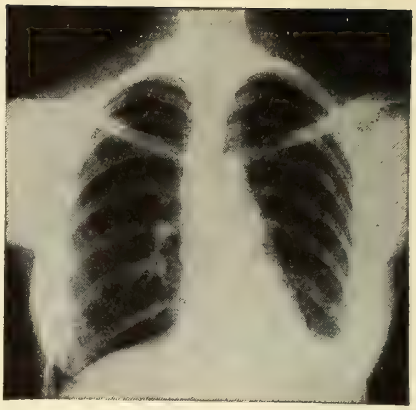

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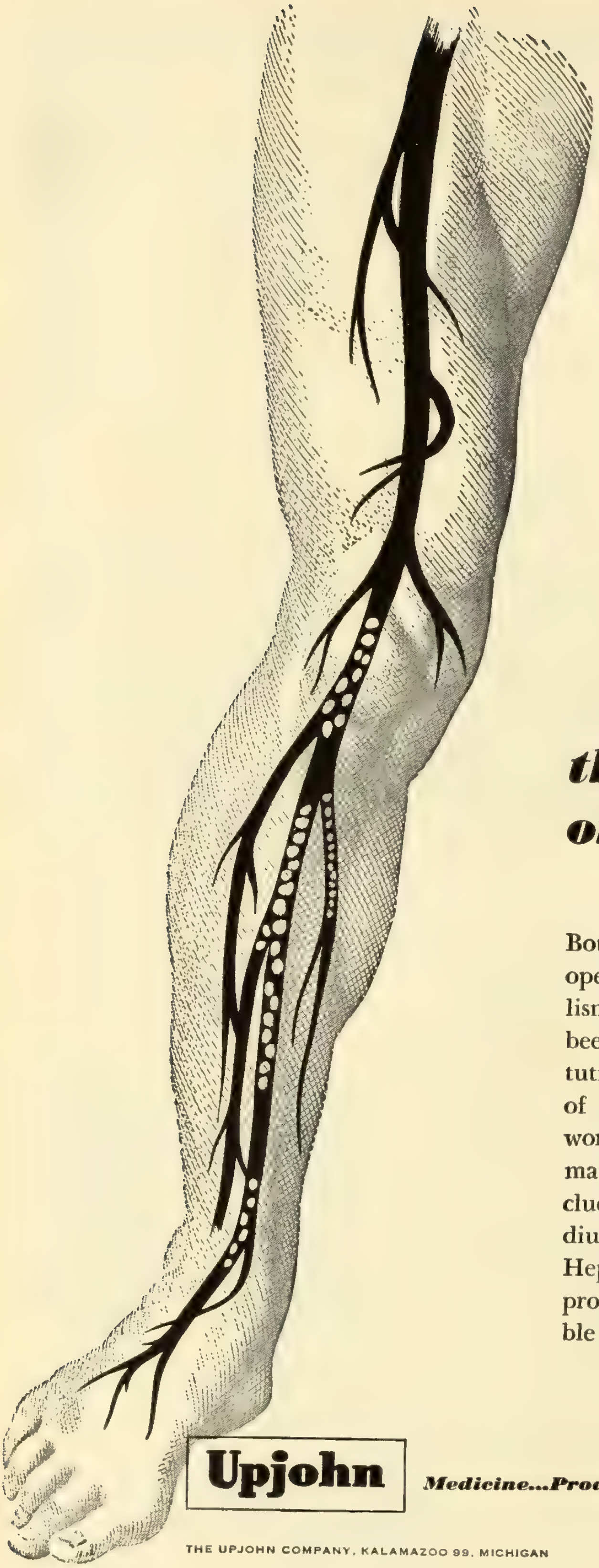

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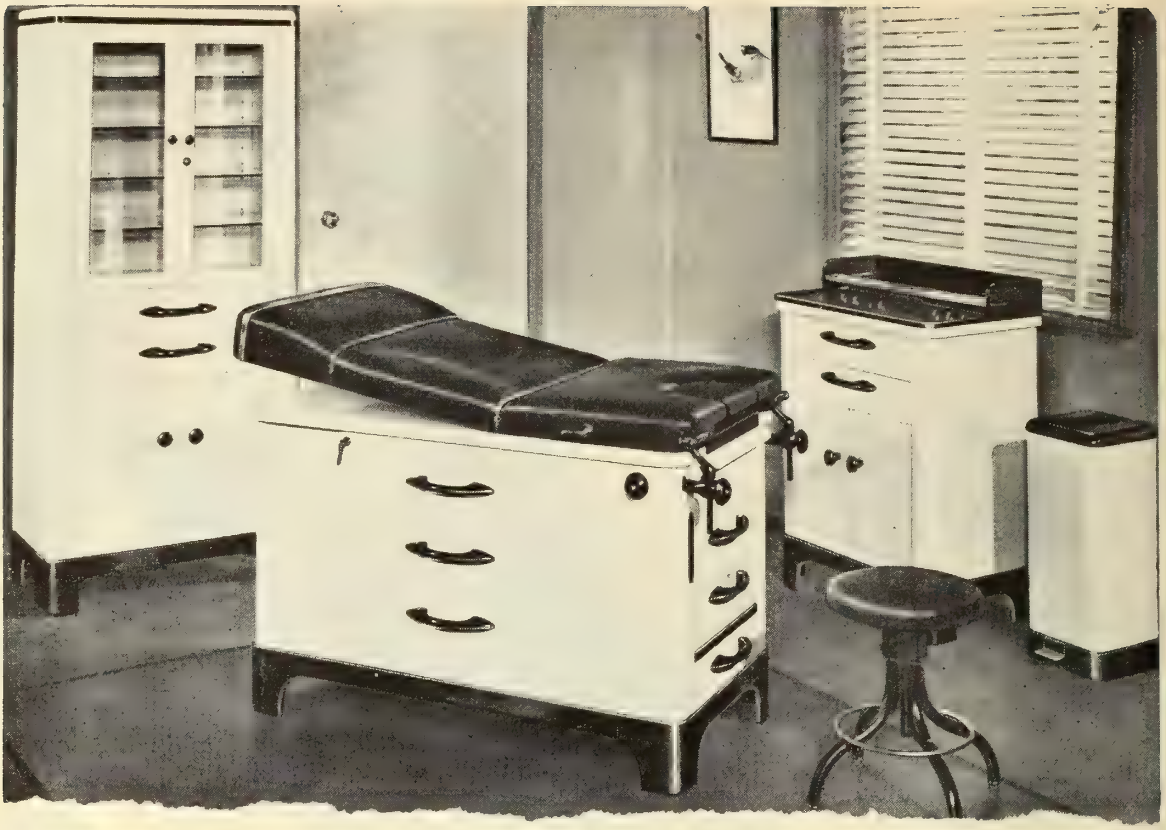

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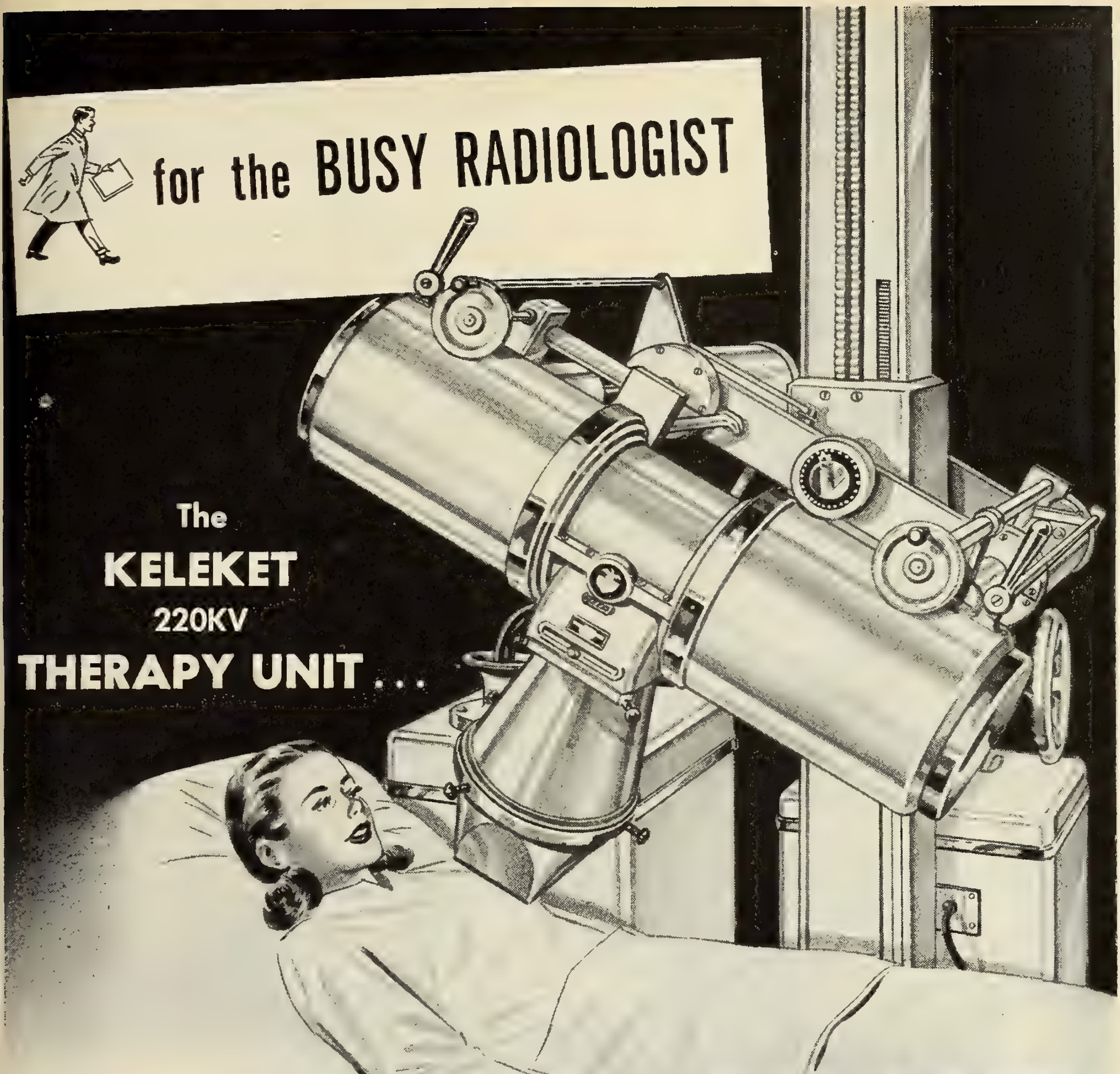

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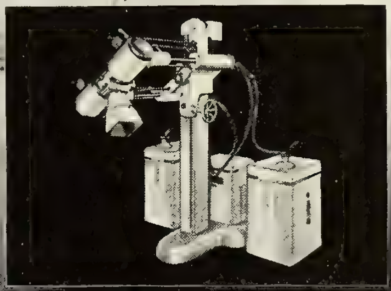

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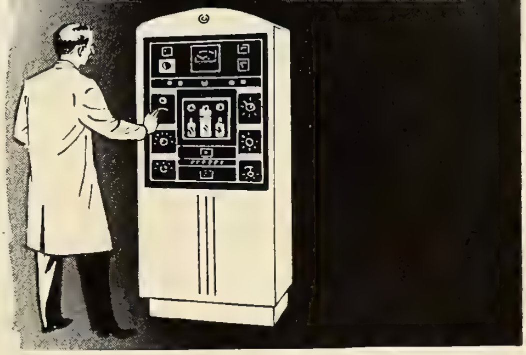

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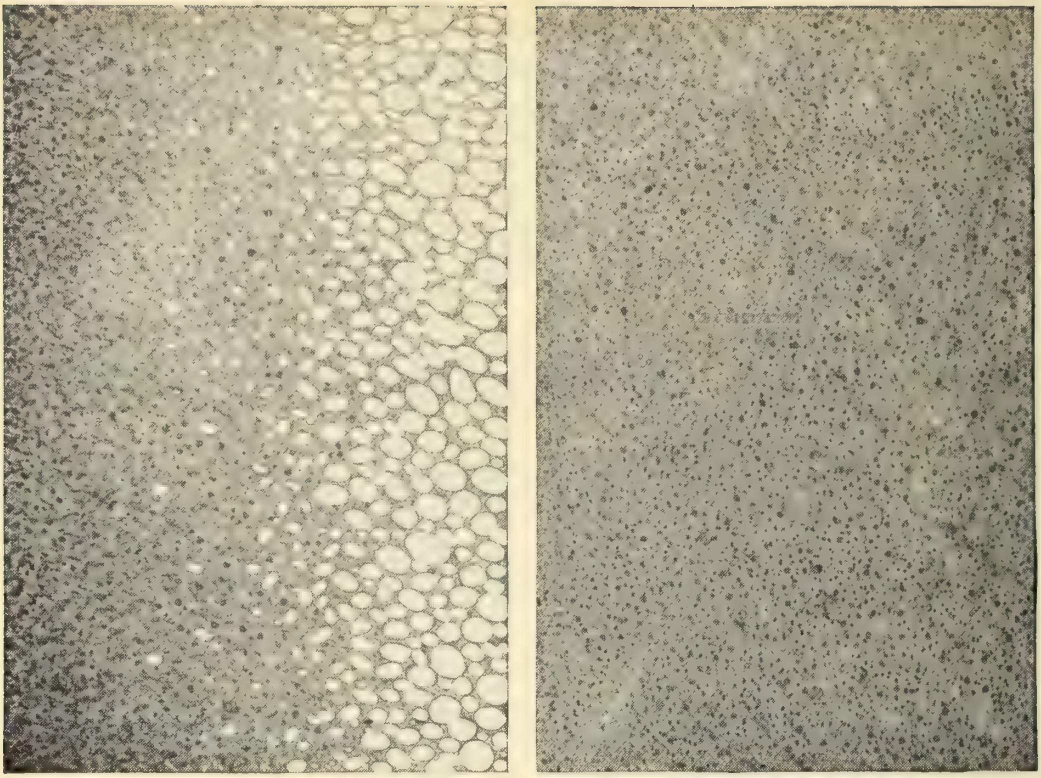

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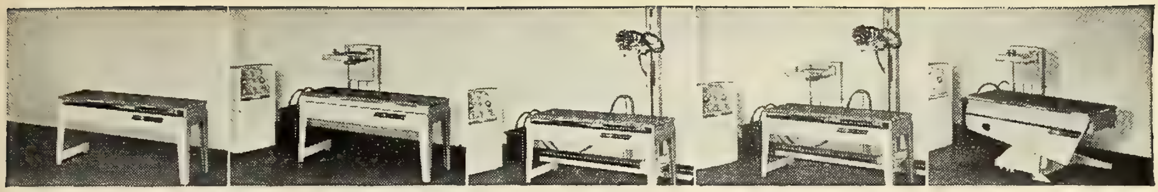

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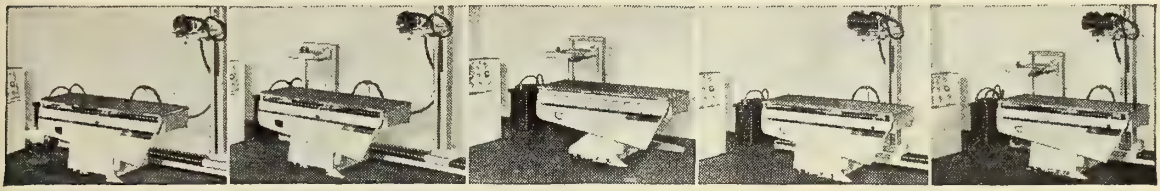

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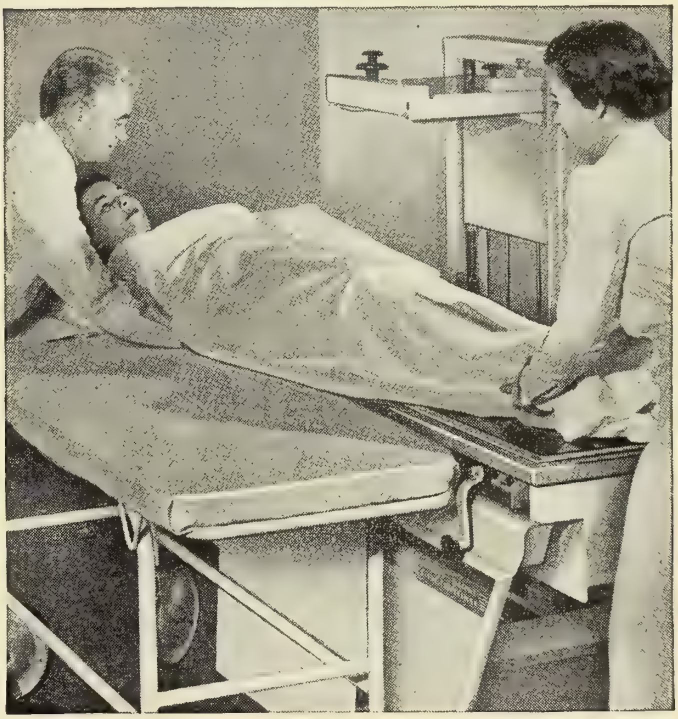

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 33 AUGUST, 1950 No. 8

A BETTER RURAL TRANSFUSION PROGRAM

A. H. BORGERSON, M.D.
Long Prairie, Minnesota

THE RURAL SURGEON visiting the larger medical and surgical centers looks with envy upon the unlimited supply of blood available to insure safety, speed convalescence and extend the range of surgical effort. He, too, needs blood to treat traumatic shock and hemorrhage, bleeding peptic ulcer, ectopic pregnancy and obstetrical blood losses, as well as for preparing his anemic patients more promptly for elective surgery. He often hopes that somehow the advantages of a blood bank may be brought to the small town hospital where he works.

The problem in closely spaced urban centers differs from that where smaller groups of people are separated by long distances or geographic barriers at times aggravated by inclement weather. The solution must be planned to fit the terrain to which it applies, and this paper will describe the program we have worked out in a typical, average small town in Minnesota.

Our village of 3,000 people, about 120 miles north of Minneapolis, serves an agricultural population of about 12,000 within a radius of 15 miles. Our twenty-three-bed hospital, soon to be replaced by a new one about twice its size, is well equipped and served by an excellent medical and nursing staff. All types of medical, obstetric and surgical emergencies are handled. The more common types of major surgery are taken care of locally, while the rare and more specialized cases of a non-urgent nature are referred to specialists in the Twin Cities or Rochester. A consulting pathologist furnishes prompt tissue diagnosis and helpful discussion of our surgical and autopsy specimens. He takes an active interest in our laboratory and administrative problems, and our blood banking plan was first suggested by him during one of our periodic conferences.

Until this year our solution of the blood problem has followed a pattern common to most small town hospitals. When the need for blood was anticipated in non-emergency cases the friends and relatives were examined, grouped and cross-matched and the blood drawn and refrigerated until needed. A "walking blood bank" was organized several years ago. The information on group, Rh, hemoglobin, physical fitness, history, serology, address and phone number of each volunteer was filed and cross indexed. From this list a donor could be obtained, the blood drawn and cross-matched within a reasonably short time to meet the need for blood in emergencies. Plasma from commercial sources and other parenteral fluids were used while waiting for the blood. Although this scheme had worked well and had saved lives in dramatic fashion, it could nevertheless be improved upon.

Accidents and emergencies occur at night, on Sunday and on holidays when the technical team trained to carry out the procedure in efficient and orderly fashion is not on duty. Delay in assembling personnel and substitution of less experienced people results in the loss of critically important time. Donors may be hard to locate and often are not properly prepared. They may have eaten recently. Serology may be too old to be reliable. The commercial plasma used to control the situation until blood becomes available is expensive and the Blue Cross does not cover

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To be read at the third annual meeting of the American Association of Blood Banks, Chicago, Illinois, October 12-14, 1950.

its cost. Impecunious patients need blood and plasma as often as the wealthy. The lavish use of expensive materials adds to the already heavy financial burden of the hospital. Nevertheless, it is our moral obligation to meet the needs of the sick and injured without regard to their ability to pay. The soul-searching reconsideration of the case that might have been saved had plasma and blood been more readily available has its effect upon the doctor's peace of mind and perhaps on his coronary arteries as well. It was obvious to the medical group of our community that an improvement upon our old transfusion habits was urgently needed.

In addition to the high cost of commercial plasma, another obstacle to the successful operation of a small hospital blood bank is the inability to predict the need for blood in any given short period of time. On some occasions a dozen bloods might be used in a single night, while at another time no blood may be required for many days and the entire refrigerated supply wasted through too long storage.

Elements of an Ideal Rural Transfusion Program

An ideal transfusion program in a small hospital requires three provisions in addition to the ordinary procurement of blood for elective transfusion:

1. There must be available an adequate supply of plasma which the physician can use in emergency without any hesitation about the patient's ability to pay.
2. There should be a moderate supply of fresh whole blood drawn and ready for administration in emergencies as soon as the patient can be grouped and the blood matched.
3. There must be a volunteer "walking blood bank" which can be activated whenever the situation indicates that the reserve of plasma and refrigerated whole blood might be exhausted.

The community must be locally self sufficient so that this program is in effect continuously, and cannot be disrupted by storms, sleet and other conditions which might interfere with the delivery of blood from a distant point. It is true that such a program requires attention and effort on the part of the medical staff. The program is vital to them and it is only proper and wise for them to give enough of their time to supervise and retain control of this phase of their medical practice.

During a discussion of these problems our consulting pathologist, Dr. R. W. Koucky, suggested that we contact the Minneapolis War Memorial Blood Bank. In conjunction with Dr. G. A. Mattson, the director of this bank, the Long Prairie Community worked out the program which I wish to outline.

The Long Prairie Plan

With the able help of the *Long Prairie Leader* and its public spirited editor, Mr. Carl C. Carlson, a planned campaign of publicity was used to initiate the program. The community problem and the proposed solution were repeatedly emphasized. A goal, both as to numbers and as to closing date, was set. The total, to date, and the names of new volunteers were published each week. Requirements for, and contraindications to, donation were printed to minimize the number of rejected prospective donors. In a surprisingly short time, hundreds of citizens had called to give their names, addresses and telephone numbers, and to receive appointments for screening examination and donation.

Our technician, Mrs. Dorothy Robertson, spent a few days at the Minneapolis War Memorial Blood Bank, and received there instruction in the meticulous methods of screening, registration, collection, preparation, storage and shipment required to meet the exacting standards of the National Institute of Health.

Finally, the plan received its auspicious start on the appointed day in February, 1950, when fifty donors were screened, registered, and made their donations. Dr. G. A. Mattson, director of the Minneapolis War Memorial Blood Bank, came to Long Prairie for the occasion and brought with him an extra registrar and technician from his staff, both to insure that the initial effort would go off smoothly and to satisfy himself that his standards and those of the National Institute of Health were met. Fifty flasks of citrated blood were soon on their way to the Minneapolis bank in specially refrigerated hampers, and within a few days twenty-five units of irradiated plasma were on hand at the hospital.

The Long Prairie community had been offered two alternatives. We could send our blood to be converted into plasma at a fixed cost per unit, or we could receive one unit of plasma for each two units of blood sent, without any other cost. We chose the latter plan because for our community it seemed simpler and more practical. It enables us to furnish all the blood and plasma needed, to those volunteers who have established membership by blood donation, without monetary cost to them.

Since opening day, six or more bloods have been drawn each week. Our aim is to keep on hand enough blood to serve the needs of any ordinary emergency. Three or four group O bloods, together with whatever happens to come in among the less common groups, form a small reserve instantly available, and serve in other ways to exchange with and supplement the bloods drawn during that week for elective transfusion. We do not hesitate to use group O blood for emergency recipients in other groups, with the addition of the Witebsky substance, provided the donor's cells are not agglutinated in the recipient's serum.

The unused bloods, or those taken in exchange, are shipped to the Minneapolis War Memorial Blood Bank each week. Our credit there may be used to provide blood for Long Prairie patients referred to hospitals in the Twin Cities, to the Veterans Administration or University hospitals, to Rochester or Duluth, or even for Long Prairie travelers in such distant places as Seattle or Miami. This credit will also be used to provide additional plasma and such special preparations as washed cells, packed red cells or bloods of unusual group, which we may wish to order from the central blood bank.

Now, six months after its start, the local blood bank has become almost self-sustaining. Only occasionally is the community called upon to make a few more voluntary donations.

Patients who have previously donated blood to the community project are entitled to receive blood or plasma without making any replacement. Those patients who did not previously contribute, and who now receive blood or plasma from the bank, must make a replacement. They replace one unit of blood for each unit of blood received, and two units of blood for each unit of plasma received from the bank. Those who fail to make their replacement of blood must pay for it at the standard commercial rate. To make a replacement, the required number of donors are given appointments on our schedule, and as soon as the blood is collected the charge is cancelled. The blood thus received as replacement helps keep the bank solvent, and the cash paid for blood and plasma not replaced is used to defray the few incidental expenses of the bank.

Since we have had blood and plasma so readily available, we have used it so freely that we now wonder how we ever got along without our blood bank. Doctors and patients alike appreciate the convenience and safety made possible by this community project. The virtually unlimited supply of plasma, the buffer of fresh whole blood and the privilege of calling on the central bank for rare blood types, typing sera, washed red cells and consultation on our transfusion problems, has proved invaluable to us.

We are proud that this has been accomplished without help from either governmental or charitable organizations and has been done without adding to the financial burden of our hospital, our patients or our community.

It is possible that this type of program will soon be instituted in other communities within our section of the state, and that through a co-ordinated system of exchange directed through a central supervising agency, such as the Minneapolis War Memorial Blood Bank, still greater safety and convenience will be provided for the hospitals, patients and doctors of our area.

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HEALTH AND DISEASE

Little attention is paid to health, and it is often considered in the negative sense of absence of disease. It is challenging to current thought to point out that health and disease are not static entities but are phases of life . . . Health, in a positive sense, consists in the capacity of the organism to maintain a balance in which it may be reasonably free of undue pain, discomfort, disability, or limitation of action including social capacity.—John Romano, M.D., *J.A.M.A.*, June 3, 1950.

PSYCHOLOGICAL MEDICINE IN A GENERAL MEDICAL SETTING

RICHARD M. MAGRAW, M.D.
Minneapolis, Minnesota

ONE of the phenomena of contemporary medicine is the upsurge of psychiatry. Some doctors feel that psychiatry is, if anything, too popular, and few will doubt that the pendulum of opinion, at least with regard to some lay thinking, has swung past dead center in appraising the accomplishments and promises of psychiatry, and that time will see further shifts in this opinion.

In medical thinking, too, more time will pass before psychiatry's ultimate place as a medical specialty will have stabilized, and also before the contributions of psychiatry which are applicable to general medicine have been sorted and winnowed by experience and integrated into the general practice of medicine. In this second regard, psychiatry can be thought of not as a medical specialty, but almost as a basic science—a basic science which for want of another name might be called psychological medicine or the human approach.[20]

My subject is not what psychiatry's niche as a medical specialty may ultimately be, but is rather how psychiatry can contribute to, and psychiatric information be integrated into general medical practice.

Much of what has been said on this question is speculative, since usually those physicians who are most conversant with psychiatry have had little opportunity to apply this in the practice of medicine, and, to some extent, the converse is true.

I am going to use my experiences in the University Hospitals Medical Clinic during the past year as a basis for discussing this question. But there are obvious difficulties to drawing any very dogmatic conclusions on this basis. For one thing, a year is not a very long time. Moreover, an analysis of one's own work is apt to be rather subjective, and the fact that the factors we are analyzing are subtle doesn't make it any less so. Furthermore, while the Medical Clinic is the closest approach we have in this institution to the actual practice of medicine, it is not entirely comparable to the practice of medicine as I have known it at least. For example, the case load there is heavily weighted by special problems referred to the University, such as cataracts, malignancies, and prostatism. Then, too, we don't, as a rule, know as much about our clinic patients as the family doctor does. My findings in the Medical Clinic are therefore not precisely comparable to what might happen in practice.

While I am talking about difficulties in presenting the subject, there are two other points that ought to be made. In this day of the popularization of psychiatry, of psychoanalytically tinged comic strips and movies, and when the term psychosomatic has become a household byword, we all have had to develop ideas (one might almost say convictions) about the role of emotions in the genesis of disease and about the psychological aspects of treatment. As far as I have been able to tell, everybody has developed a different philosophy about this, and one of the difficulties in discussing the subject is that I am confronted by almost as many different points of view as there are readers of this article.

To some of us, psychiatric pronouncements in this regard seem a little fantastic and slightly improper. Others are prone to rather uncritically accept psychiatric theorizing and are in this sense "more Royalist than the King." To most of us some of the psychiatric inferences drawn from behavior touch too close to our inner feelings for us to be entirely able to view the ideas objectively.

One other thing which makes a discussion of this subject difficult is the extent of the "psychological dimension" in practice. As Menninger said, discussing "emotional factors" in medicine "is comparable to a discussion of chemical factors"[10] in medicine.

When I started working in the Medical Clinic a year ago after a little better than two years in psychiatry and neurology, I had the usual misgivings about what I had forgotten in medicine.

I wish particularly to express my indebtedness to Dr. Robert D. Mooney of Saint Paul with whom I share an interest in this aspect of medicine. He and I have discussed this subject so extensively that it is impossible for me to tell where my ideas leave off and his begin.

Acknowledgment is also made to Drs. Donald W. Hastings, Cecil J. Watson, C. Knight Aldrich, and the staff of the Medical Clinic for their support.

This article appeared in *The Bulletin of the University of Minnesota Hospitals and Minnesota Medical Foundation* for March 17, 1950.

I remember the near panic I experienced when I realized that I couldn't remember which lung had three lobes. However, I found, as others of you have with a similar experience, that what was forgotten quickly came back.

But these were not the only misgivings I had. There were in my own mind (and in the minds of the people with whom I had discussed this departure from the beaten path) questions as to just how what I had learned in psychiatry would apply in general practice. I intend to discuss my subject by restating those questions about whether what one can learn in psychiatry is applicable in medical practice and then giving the answers that have emerged in the Medical Clinic the past year. Before I do that, however, I think it would be wise to clarify a little what these things are that one can learn from psychiatry.

You are all familiar with some of the things which are learned in psychiatric training, such as the characteristics of behavior in the various psychoses, the procedures of insulin and electric shock. These things are associated with psychiatry as a specialty.

There are other skills and attitudes which psychiatry teaches for use in both its functions as a medical specialty and as a basic science, of which you are less apt to be aware.

For example, psychiatric training should bring an understanding of the limitations of psychiatry and a recognition that one's goals may have to be fairly modest. It must have been a psychiatrist who first said, "You can't make a silk purse out of a sow's ear." The student must come to recognize that bilateral far-advanced tuberculosis with cavitation of the psyche or carcinomatoses of the soul are far more frequent than their organic analogues, and he reluctantly comes to see that it is no more possible completely to remake the personality than it is to remake the body.

Furthermore, the student should get an awareness of unconscious motivations and thinking. Psychiatric training can equip the trainee with a working knowledge of this domain wherein appears to lie that majority of our thought processes of which we ourselves are completely unaware.

From this awareness of unconscious feelings comes an understanding of symbolism in thought and symptom. I am sorry I do not have more time to discuss this since it is hard to overestimate the importance of understanding unconscious feelings in understanding the "Language of Symptoms." In the few cases I am going to describe later I think the symbolic expression of unconscious feelings will be quite evident.

Another set of skills which are particularly difficult to explain, but which are especially pertinent to what we are talking about, are those which give the doctor clues as to what kind of a person the patient has been and what his present mental state is. This kind of skill has long been identified in medicine as "the Art of Medicine." All psychiatry has done here is to refine and bring up to a level of thought where we can talk about and study them, things which we have used intuitively for years.

It would be nice if the psychiatrist could carry with him a stethoscope especially designed for hearing emotional overtones. For one thing it might be easier for some of us to believe that he does hear the things he claims to. I am sure that I need not point out to you that the psychiatrists walk these halls unencumbered by such diagnostic appliances as stethoscopes, ophthalmoscopes, and without even a percussion hammer, although this is an heretical thought.

In the absence of such mechanical aids in diagnosis, the doctor must rely on his own senses to get an understanding of the patient's feelings. He must "listen with the third ear"[14] and read between the lines to catch the shades of feeling which are his clinical facts. It is well to remember that when we are dealing with another person in any face-to-face situation, there are many kinds of communication involved other than the words spoken. We can see things in a patient's posture, demeanor, and expression which speak eloquent volumes about him. Thus we learn, for example, how he feels about us and conversely, he divines whether we like him.

Lumped together in a structure called an "interview," these subtle skills compose the tools a psychiatrist carries about in his side pocket. Further, this is the equipment he uses in treatment as well as in diagnosis.

Now these points we have been considering are what we ask about when we raise questions as to how or to what extent psychiatric skills and knowledge can be incorporated into general medical practice.

One of the questions which was brought up when I was going to start in the Medical Clinic a year ago was the question of time. Would it be practicable, simply from the standpoint of time, to include in the usual medical workup more than an intuitive assessment of the patient's personality and of his background? Moreover, again from the standpoint of time, would it be possible in ordinary medical therapy to go further in the treatment of patients than just to say, "You're nervous," "It's your nerves," or "There's nothing organically wrong with you. Go home and forget it"? Experience in the Medical Clinic clearly indicates that the answer to these questions is "yes."

It has been possible to practice this kind of medicine there and to carry a full clinic load without getting bogged down in any way. In fact in the Medical Clinic it has seemed to me that diagnosing and treating patients using the comprehensive approach is actually quicker than using other approaches. So what might at first glance be thought to be the long way around, appears to be the short way through. This is what we might expect since in every phase of medicine the quickest way to complete things is to get at the core of the difficulty.

The saving of time is especially evident when we are dealing with patients with functional complaints. We have all experienced the time-consuming chase of "will-o'-the-wisp" complaints upone diagnostic by-way and down another, only to wind up with nothing to show for our efforts but strained relationships with the patient. I am not suggesting that this comprehensive approach is going to obviate the "diagnostic impasse" we reach with such complaints, but it has been my experience that it has held the key to a surprising number of such situations. I would like to cite some recent cases to emphasize these points.

Case 1.—This patient, a forty-year-old unmarried schoolteacher, came in for a checkup complaining of tightness and drawing over the left precordium with radiation to the left shoulder and down the left arm to the hand. The pain was not clearly related to exertion and had been present intermittently for about two years. During this period the patient had not been working. Physical examination was normal except that the patient was manifestly depressed.

By picking up and following out clues in the manner I described earlier the following story was brought out. The patient indicated that she had thought she might have cancer of the breast. Indeed the manner in which she said this suggested that she might welcome that diagnosis.

At the time of onset of the present complaints two years before, the patient's mother had died of breast cancer. (In explaining this the patient gestured toward her own left breast.) At that time the patient had experienced a similar feeling of tightness in her left hand and in fact her left hand had been clenched for two weeks then so that she could not voluntarily relax it, but had to pry her fingers open with her right hand.

In her second visit to the clinic this patient was able with a little help to express some of the deep anger she felt toward her mother with considerable subjective and objective improvement. She remembered that three years before her mother had died, at a time when she herself had been sick with pneumonia, she had had thoughts of violence toward her mother and a young nephew living with her mother at that time. For years she had supported her mother, had in fact purchased a home for the mother, only to see the mother devote her substance and efforts to the care of her sons, who always came first. She spoke with deep feeling of the senseless beatings she had received as a girl while her stepbrothers got off with little more than a reprimand.

The patient had been placed in an orphanage twice in her childhood for a period of about a year each time. The first time was as a very young child when her father abandoned the family and the second was at the age of twelve when her stepfather died. During the patient's hospital stay with pneumonia, she looked forward to convalescing at home under the care of her mother. As she said, she had been counting on "getting close to mother at last" only to find when she got home that the mother's interests were centered in the nephew.

She explained her unemployment in the past two years by saying that she guessed she had just become "tired of being the breadwinner for the family."

Case 2.—This patient, a thirty-two-year-old mother of three, was first seen on the same morning as Case 1. Her complaints were superficially similar to Case 1 in that she also suffered pain in the left chest, shoulder, arm, and hand. On physical examination there was tenderness in these areas most marked over the left humerus. This patient also was obviously depressed. It needed no questioning or indirection to elicit from her a concern that she might have a cancer of the breast.

Her complaints dated back eight weeks to about the time when she had decided to divorce her husband. About one year previously her husband had beaten her severely on the left side of the body as she lay in bed.

She was also seen on one other clinic visit after the initial examination. During the second visit the almost overwhelming self-doubts and self-accusations she felt over many things in her life and especially over the divorce came out. She felt that it was somehow all her fault and brought forth a good many rationalizations as to why she shouldn't go through with the divorce. I suggested that she was really being rather unrealistic in taking on all the blame for this and that apparently she didn't really have a very good opinion of herself. I suggested further that perhaps one of the reasons she found the idea of divorce so disturbing was that it only served to heighten her sense of failure and strengthen her inner convictions of her own unworthiness. Coincident with this discussion the patient's demeanor and expression changed. She became more relaxed and left saying she felt better already. The patient was seen again ten days later and to all intents and purposes was well.

Part of the concern which was felt about whether this approach would require too much time came from the assumption that psychological medicine was something that had to be done in addition to and separate from the rest of the doctor's job rather than right along with it. In Medical Clinic I learned again that a thorough medical workup of history taking and physical examination is the best routine way of establishing rapport. Similarly I learned that the opportunities for quick evaluation of personality are better in this setting than any other I know of. Consequently it has been interesting and gratifying to find that this kind of handling of emotional problems can be done almost with the back of one's hand and with an over-all saving of time to the physician. It can be done in an unobtrusive fashion wherein the patient is not entirely aware of what is happening and hence the usual resistance to psychiatric treatment does not arise.

The question of how much time it is going to take to practice medicine in this way depends in part on how deeply one goes in treating emotional problems. What I have been saying is that there is a level of psychotherapy other than that of a thorough "vacuuming and dredging of complexes"[1] which experience has thus far shown to be particularly effective in a general medical setting, and to which medical practice is peculiarly adapted.

This has a different but not necessarily inferior goal to that long-term, time-consuming, expensive type of therapy which has come to represent to some the *"sine qua non"* of psychiatric treatment. This level of psychotherapy can be compared to incision and drainage of an abscess with evacuation of the collection of emotional pus as its goal. In this treatment the physician not only drains the abscess but may help the patient avoid similar future accumulations of pus if the patient's own native powers of resistance do not appear adequate.

Oftentimes it is surprisingly easy to do this kind of psychotherapy. However, before I cite additional cases, I would like to digress a moment to emphasize that in handling emotional problems, as in other problems in medicine, we expect different patients to achieve varying therapeutic goals. One cannot expect a perfect or even satisfactory result in many cases here just as one cannot expect to restore certain cardiac cases to anything like full activity. Consequently, there is a lot of room in the handling of emotional problems for therapeutic conservatism and the light touch. It is well to avoid the error that Rogerson described as "unwise therapeutic push-fullness."[15]

I would like to use additional cases for illustration. These cases I am using are samples rather than selections or exceptions since a good portion of the patients coming to the Medical Clinic for their initial examinations present this kind of problem.

Case 3.—This patient was a middle-aged woman who in addition to slight anorexia complained of a constant right upper quadrant abdominal pain which was not related to food intake but tended to be accentuated by activity (in her case, usually housework). In response to a question as to what the pain made her think about she said that once years ago she had been kicked in that area by an adolescent daughter. The daughter had been a thorn in her side from her earliest years because of a convulsive disorder and as a behavior problem. The patient then indicated that she was waiting the daughter's return from the Cambridge Epileptic Colony where she had been treated for several years. Further it developed that on the day her abdominal pain started she had received a letter from this institution stating that her daughter was to be discharged to her home as it was felt that she could now make some sort of an adjustment outside of the institution.

Case 4.—This patient was a forty-four-year-old married woman, mother of ten children, who complained of palpitation and of numbness and stiffness of her hands and fingers. She first developed these symptoms in the summer of 1949. They came on one night when she was in bed nursing her two-months-old baby. At that time she became faint and felt as though she was losing consciousness. She suffered palpitation and her hands became numb and stiff. She described and demonstrated this to me by saying she felt she "couldn't close them together." Her husband was not living at home at the time except for weekends as he had taken a job in Minneapolis. Shortly before this episode the patient had learned of his affair with a woman in Minneapolis and had felt a burning resentment about it which she had largely been unable to express to him. While we don't really know the answer, the things I have told you and the rest of the evidence available indicated that this symptom portrayed this conscientious mother's horrified repression of vengeful thoughts about her husband and/or their youngest child.

I have pointed out that uncovering and treating the psychological factors in these cases did not require any extra part of the doctor's time in the Medical Clinic. I think it is important to explain that this conserving of time in the Medical Clinic was not done at the expense of added work for the specialty clinics or for the laboratory. In fact, I think the opposite was true. It has been my impression that using a comprehensive approach in the Medical Clinic resulted in considerable economy in laboratory and x-ray procedures and in hospitalization.

I do not mean to imply that such economies are the reason for applying psychological medicine, for I think the improvement in medical care inherent in its use is obvious. However, I do feel that such economies are an inevitable result and a welcome result, too, in this day when the rising cost of care is one of medicine's major problems.

Similarly, the use of this approach seemed to necessitate fewer of the "rule out disease" variety of referrals to the specialty clinics. I felt that fewer patients needed to be started off on the clinic merry-go-round in the hope that they would come back labeled. Fewer, too, wound up as "floaters," drifting vaguely through the clinics. Those who have worked in any of the out-patient specialty clinics know what a burdensome and frustrating load this kind of patient makes.

Some of you may be wondering whether I didn't find it necessary to get what might be regarded as unnecessary consultations and laboratory tests anyway in order to establish rapport and convince the patient. I have become convinced that while it is sometimes necessary to use these stratagems in this way, in general, they do not work as well as we like to think they do. Perhaps this is a good time to point out that when we order a plethora of laboratory and x-ray procedures ostensibly to convince the patient, more often than not we are ordering these procedures to bolster our own confidence in our diagnoses. When we have facts such as are apparent in the case histories given, we need less of such reassurance. With regard to using a profusion of laboratory tests to impress the patient with the thoroughness of the examination and thus establish rapport, I can only say that there are easier ways of establishing better rapport inherent in psychological medicine.

This brings us to a consideration of the second question that came up in regard to integrating psychological medicine into medical practice. That question was asked in various ways. "Is this factual?" "How accurate are these guesses about patients' feelings?" "How much can we rely on our impressions of emotional aspects of cases in proceeding in treatment?" "Is this information exact enough so that we can really bank on it and be safe in not pushing our diagnostic armamentarium to the utmost?"

The answer that I have found is that these facts can be used with the same confidence that we use any other facts gathered in our medical workup. However, just as the radiologist can see facts on a film that the uninitiated have not learned to see, so skills such as we described earlier enable one to gather from a patient psychological facts which may not be evident to someone less sensitive in this regard. Because of our almost exclusively materialistic background, it is easier for doctors to see the radiologist's "facts" derived from the film than to see psychological facts derived from equally good evidence. It is hard for us to make confident use of clinical information obtained through skills in interpersonal dealing. We have all seen carefully correct medical workups which omit nearly all of the really relevant information for this reason. Thus we might see duly recorded in a history of a patient with gynecological complaints, for example, the fact that the patient had measles at age four but find no mention of the fact that living her early years with a brutal, indifferent father had colored all her subsequent feelings about and reactions to sex.

The question here, then, is not so much "Is this material factual?" as it is "How can we doctors overcome our own blind spots and mental sets so as to be able to accept this material as factual and act on it?" It seems to me that a doctor's ability to recognize and integrate these facts into medical practice is a measure of his working understanding of the total organism point of view that we all pay lip service to these days.

Given a set of facts such as in the case of the woman whose daughter had kicked her long ago, the question is no longer whether we are justified in not working to the limit our diagnostic instruments, our special departments, and the patient in an attempt to pin something organic on the patient, but rather whether we are justified in doing so.

There is still a third question. "Does becoming interested in psychological medicine make one more likely to miss organic disease?" I think it is evident that an exaggerated development or interest in this regard might have the same effect as a distorted interest in any special part of medicine, including the usual extra interest in organic disorders with which medical training has endowed most of us.

As I have indicated earlier, an awareness of emotional factors does not exclude an awareness of organic factors. There is no more excuse for slighting organic factors while paying attention to emotional factors than for neglecting to examine the patient's heart irrespective of the demonstration of pathology during examination of his lungs.

I think the question has been well answered by Weiss in the quotation, "Somebody usually reminds me that in becoming interested in psychosomatic medicine one may overlook organic disease, not mentioning that an exclusive organic orientation leads to equally serious consequences in overlooking neurotic illness. Of course, as long as we are human, we are going to make mistakes. But if we plant one foot firmly in tissue pathology and the other foot firmly in psychopathology, then I think we have the correct balance for this approach."[17]

These are the main questions which came up before I started on the Medical Clinic regarding the feasibility of integrating psychiatry into medical practice, and these, too, are the observations I made in the Medical Clinic in answer to them.

While in the Clinic I have learned some other things about this kind of practice which I would like to talk about briefly before I conclude.

I was surprised to learn how frequently depressions occurred as the primary difficulty in patients consulting a doctor in a general medical practice. At first I thought this might be peculiar to the University Hospitals, but I learned that other doctors in practice have had the same experience. It was interesting to see how few of these patients expressed depression in psychological terms. Almost all were disguised by physical complaints. Out of the last 150 new patients I saw in the Medical Clinic prior to January 1, 1950, depression was the sole or major problem in eighteen. It was impressive to observe that among the patients seen, persons who developed symptoms of peptic ulcer for the first time during middle age were all in a depression at the time they had their symptoms.

One very pleasant thing I discovered about this kind of practice was that the practice of medicine was more satisfying than it had ever been before. You all know how we tend to get the major part of our pleasure in medicine out of making a difficult organic diagnosis and competing in the diagnostic game, the kind of satisfaction that makes us push hard and stretch points to diagnose a rare condition such as Cushing's Syndrome, et cetera. Obviously this attitude is hard on the neurotic. Whitehorn called attention to this fact when he said that "the neurotic runs the considerable risk of being reacted against emotionally as if he or she were cheating in the diagnostic game." I no longer feel that neurotic complaints are merely unavoidable chaff to be waded through to get at the organic nuggets mixed in. It seems to me now that almost every case has the potentialities of enthusiastic interest which I used to reserve for diagnosing multiple myeloma ectopic pregnancy, and the like. Incidentally, I think this new frame of mind makes it easier to treat the kind of problems that make up the bulk of practice since an ability to feel friendly interest in the patient is the cornerstone of therapy.

I am a little afraid that what I have been saying might leave you with the impression that psychological medicine is something to be applied only in dealing with functional complaints. Actually, it is a universally useful instrument in our relationships with all patients.

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(Continued on Page 796)

THE 1949 CANCER STATISTICAL STUDY

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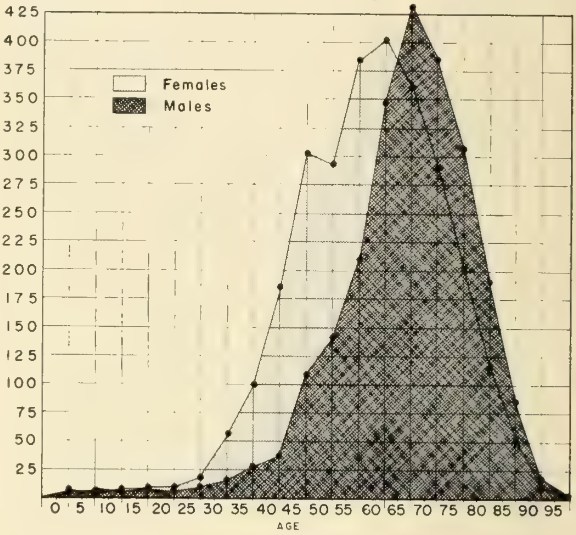
IN 1948, the Division of Cancer Control of the Minnesota Department of Health began a statistical study of reported cases of cancer among patients in hospitals throughout the state. Findings accumulated during the initial year of the study were published in the January, 1950, issue of MINNESOTA MEDICINE.[2] That preliminary study was based on 3,798 case reports collected under a State Board of Health regulation. In order to assure legal protection for those participating in the study, cancer reporting was inaugurated into a statute by the 1949 State Legislature. The total cases reported during 1948 were 5,176. The number of cases included in the present (1949) report, total 5,473, an increase of 297 over the 1948 total. The rate at which cases are being reported for the first six months of 1950 would indicate a further substantial increase by the time the 1950 study is terminated as of April 15, 1951.

The number of hospitals reporting has also increased. During 1949, thirty-five additional hospitals came into the program, making a total of 178 hospitals reporting cancer cases as of December 31, 1949. This total is 90 per cent of the hospitals in Minnesota requested to participate. In respect to percentage of hospitals reporting, Minnesota compares very favorably with other states in which there is a program of statistical reporting on cancer. This fact is brought out in a recent study by the Cancer Control Division of the Pennsylvania Department of Health.[1]. In that study, letters and questionnaires were sent to fifty-three state and territorial departments of health to find out what methods were used and what measure of success was achieved in different sections of the country. Of the forty-four states replying, nineteen favored voluntary reporting by hospitals. Among states that depend upon this system, the percentage of hospitals cooperating is not impressive. Pennsylvania compares favorably with other states, with only 30 per cent of Pennsylvania hospitals reporting.

CANCER AMONG MINNESOTA RESIDENTS
Reported during 1949



The method used in Minnesota is voluntary reporting by hospitals. Two field workers are employed to visit hospitals and aid recorders in making their reports on cancer cases as complete as possible. Excellent cooperation has been given by practically all hospitals. The chief problem encountered in any voluntary reporting system is the difficulty in obtaining complete histories on patients hospitalized with cancer. The two most important questions asked are these:

> How long after noticing his symptoms did the patient delay before seeing his doctor?
>
> How long after the first visit to the first physician was the patient hospitalized?

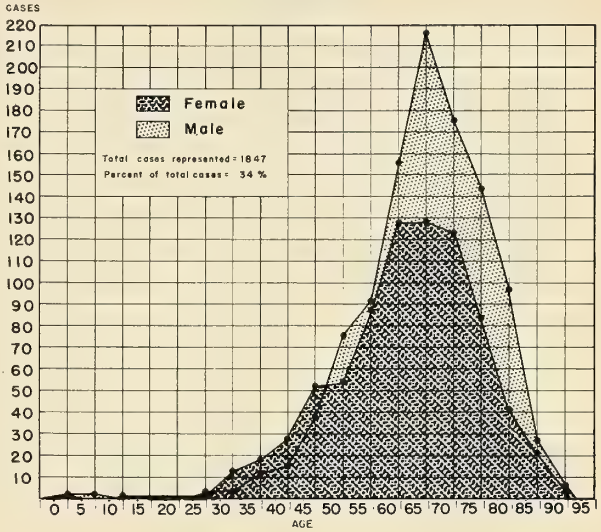
Answers to these questions depend upon histories contained in hospital medical records. These histories in turn depend upon the memories of both the doctor and the patient, which cannot always be relied upon. It is hoped that, during 1950, more accurate reports can be obtained through more intensive field work.

Despite an increase in number of reports—162 more among males in 1949 than in 1948, and 135

TABLE I. CANCER CASES REPORTED ACCORDING TO COUNTY OF PATIENT'S RESIDENCE

COUNTY	TOTAL NUMBER OF REPORTS RECEIVED 1948	1949
Aitkin	24	28
Anoka	31	18
Becker	45	66
Beltrami	31	36
Benton	17	17
Big Stone	19	16
Blue Earth	91	89
Brown	53	57
Carlton	42	45
Carver	20	27
Cass	31	20
Chippewa	34	37
Chisago	24	19
Clay	23	22
Clearwater	16	13
Cook	5	3
Cottonwood	13	23
Crow Wing	50	52
Dakota	49	68
Dodge	5	4
Douglas	42	32
Faribault	22	20
Fillmore	7	9
Freeborn	30	40
Goodhue	57	66
Grant	10	19
Hennepin	132	109
Houston	4	10
Hubbard	15	25
Isanti	15	21
Itasca	68	65
Jackson	18	13
Kanabec	21	9
Kandiyohi	36	31
Kittson	13	17
Koochiching	28	35
Lac Qui Parle	24	14
Lake	19	26
Lake of the Woods	9	8
Le Sueur	30	41
Lincoln	11	16
Lyon	41	25
McLeod	21	28
Mahnomen	10	8
Marshall	22	12
Martin	27	29
Meeker	40	28
Mille Lacs	44	37
Morrison	53	48
Mower	47	61
Murray	21	14
Nicollet	31	23
Nobles	23	36
Norman	24	21
Olmsted	3	3
Otter Tail	75	73
Pennington	34	29
Pine	24	37
Pipestone	9	10
Polk	79	73
Pope	16	13
Ramsey	21	23
Red Lake	17	16
Redwood	27	27
Renville	28	38
Rice	45	42
Rock	5	3
Roseau	26	16
St. Louis	214	237
Scott	20	27
Sherburne	17	12
Sibley	25	23
Stearns	126	146
Steele	23	19
Stevens	14	23
Swift	30	22
Todd	47	33
Traverse	7	6
Wabasha	25	20
Wadena	24	18
Waseca	8	12
Washington	45	56
Watonwan	26	23
Wilkin	17	16
Winona	44	54
Wright	40	25
Yellow Medicine	22	19
Minneapolis	1358	1416
St. Paul	701	844
Duluth	289	327
Unknown	7	36
TOTAL	5176	5473

DIGESTIVE CANCER AMONG RESIDENTS OF MINNESOTA
Reported during 1949



more among females—morbidity percentages for cancers in both male and female patients are altered very little, whether one considers the over-all picture or those representing cancers at specific sites. Peak year and age-range pictures are also similar for 1948 and 1949. Table 1 compares the number of cancer cases reported in 1948 with the corresponding figures for 1949, by patients' counties of residence.

The cancer cases reported as discharged by Minnesota hospitals during the period from January 1 to December 31, 1949—a total of 5,473 cases—are used as the basis for the graphs presented in this report. Regarding sites of cancer, as shown in the graphs, the following situations may be noteworthy:

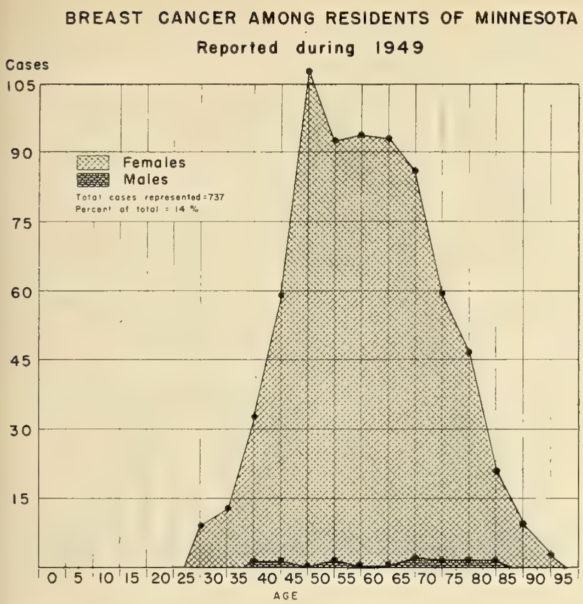
Cancer of the digestive tract, with a total of 1847 cases, including esophagus, bowel, rectum and other sites in the digestive organs, comprises the largest single group of reported neoplasms in the Minnesota study. In digestive tract cancer, cases among males are more frequent than among females, the peak year for both sexes being sixty-seven and the age range from forty-two to eighty-seven years.

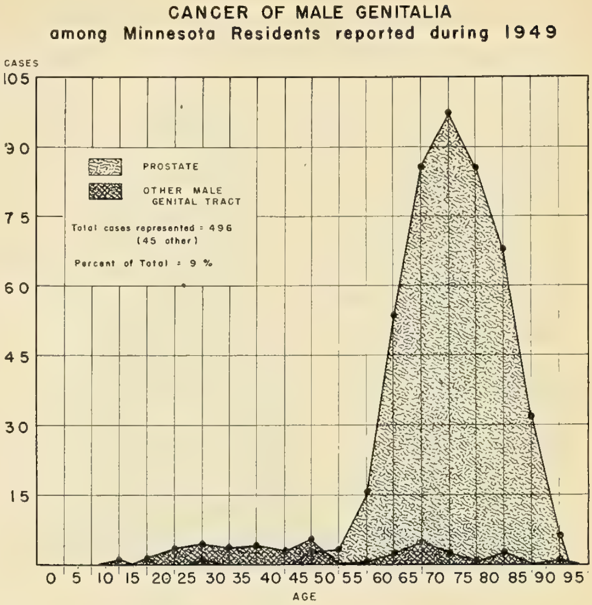
In cancer of the breast, most of the cases are found between the ages of forty-two and seventy-two years, as in the 1948 picture. Cancer of the male breast is negligible.

According to the study, cancer of the uterus, including the cervix, occurs mostly between the

TABLE II. CANCER REPORTED AMONG MINNESOTA RESIDENTS BY SITE AND AGE—1949

Age	Breast		Ut.	Other	Pros.	Other	Urinary		Digestive		Respiratory		Buccal		Skin		Brain & Cns.		Leukemia		Hodgkin's		Other		Total 5473	
	M 8	F 729	533	211	451	45	M 282	F 201	M 1065	F 782	M 214	F 83	M 77	F 32	M 60	F 28	M 57	F 46	M 75	F 60	M 43	F 38	M 165	F 188	M 2542	F 2931
0-4							3	3	1	1							1	1	6	2			2	3	7	8
5-9							1	1	1								3	3	6	7	4		1	2	6	6
10-14					1		2	2		1							2	4	2	3	2	1	1	1	6	8
15-19			1	2		1	2	3		1	1				1		2	1	3		1			2	7	10
20-24			2			3		1		1		1				1	1	1	4	1	2	5	1	2	5	9
25-29		9	4	2	1	4			2	1					2		1		1	1	4	1	1	2	11	18
30-34		13	17	6		3	1		3	13	2	1	2	3			3	2	1	2	3	1	5	2	19	57
35-39	1	33	38	6		4	4	2	12	19	5	1	3	1	2		2	2		3	1	1	7	10	39	113
40-44	1	59	56	16		2	11	7	16	28	5	4	4	2	3		5	4	2	4	1	2	4	10	50	187
45-49		107	72	27	2	5	15	13	38	52	17	4	6	2	2	1	14	4	4	2	5	3	11	11	110	303
50-54	1	93	72	25	4	4	20	16	74	53	18	9	7	3	5	2	6	3	5	5	4	4	8	17	146	294
55-59		94	84	33	16	1	32	35	91	87	30	16	8	4	8	2	7	10	7	7	3	5	19	21	212	386
60-64		93	69	28	53	3	49	30	156	128	42	7	11	6	7	5	5	5	8	6	5	6	22	30	348	401
65-69	2	86	34	35	86	6	36	29	217	128	45	11	8	4	6	3	2	2	7	4	2	3	26	29	432	363
70-74	1	59	46	17	97	3	44	15	176	118	25	13	8	2	4	1	3	2	8	8	1		26	19	386	293
75-79	1	47	22	8	86	1	36	22	144	84	11	4	8	1	7	3			7	3	3	4	14	10	307	202
80-84	1	23	10	3	67	4	16	12	97	41	9	9	7	2	7	6		1	2	2	2	1	8	11	215	119
85-89		9	5	2	32		6	7	27	21	4	2	4	1	2	1						1	8	6	83	54
90-94		3			6	1	2	2	6	4		1	1	1	4	2			1						20	13
95-99							1									1									1	1
Unknown		1	1	1			1	1	4	1								1	1							





ages of thirty-two and eighty-two years, and is much more prevalent than cancers of the other female genital organs.

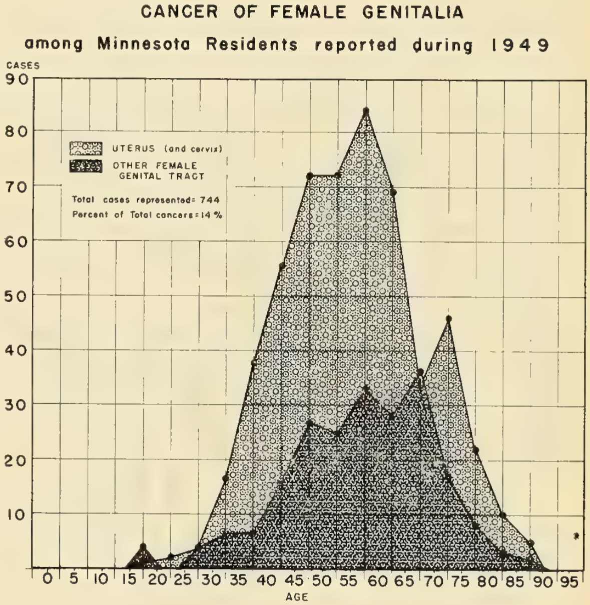
From the reports, cancer of the prostate hardly ever occurs before the age of fifty-two years, with the bulk of the cases appearing between fifty-seven and ninety-two. Cancer of other male genitalia is insignificant.

A few cases of urinary tract cancer were reported as early as the age of two years. Both males and females begin to show urinary cancers in greater numbers at the age of thirty-seven years and continue to age ninety-two; more cases are found among males.

The 297 cases of respiratory tract cancer reported make up 5 per cent of the total. This type of cancer appears nearly three times as often in the male as in the female. The age range is from forty-two years to eighty-two years for both sexes.

Buccal cancer is more prevalent in our reports among males than females. While both groups reach a peak at age sixty-two, cases range from thirty-two to eighty-seven years of age. No buccal cancer is recorded before the age of twenty-seven.

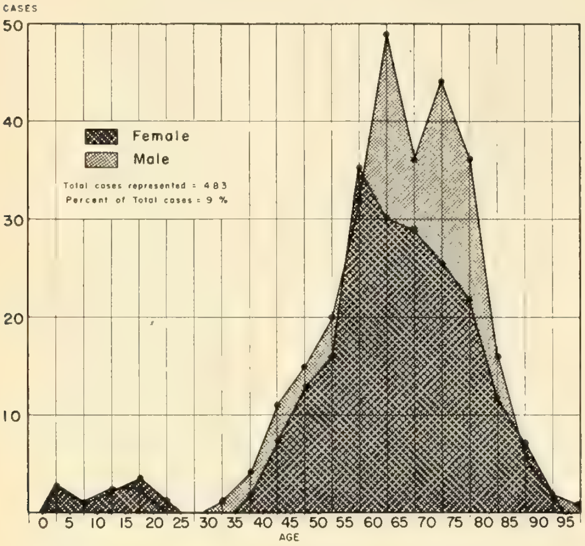
With only eighty-eight cases of skin cancer reported, no consistent pattern is found. Cancers of the skin occur as early as seventeen years and manifest themselves in greater numbers toward the latter part of life. This holds true for both male and female, with cases predominating among males.



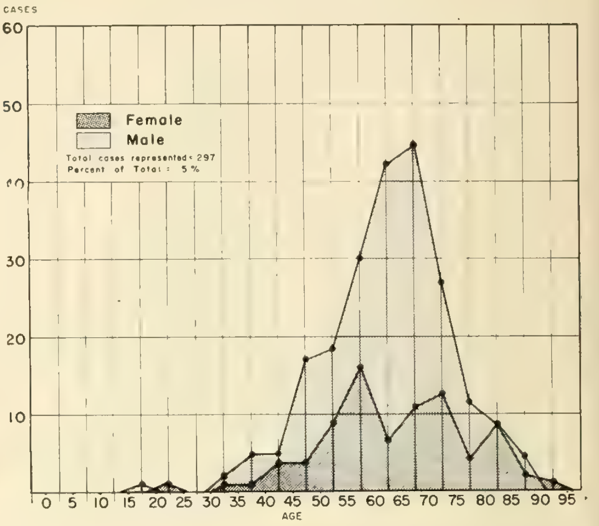
Reports show that the majority of cases of cancer of the brain and central nervous system occur earlier in life than most other true cancers. The female age range continues a little later in life than the male.

Leukemia is chiefly a disease of the very young; 60 per cent of the cases reported are under fifteen years of age. Most of the leukemias in later life are found in the age groups forty-two to eighty-two.

Although reported cases range from age seven to eighty-seven, no real pattern of occurrence can be demonstrated for Hodgkin's disease. However,



URINARY CANCER AMONG RESIDENTS OF MINNESOTA
Reported during 1949



RESPIRATORY CANCER AMONG RESIDENTS OF MINNESOTA
Reported during 1949

this conclusion is based on only eighty-one cases, or 2 per cent of the total.

In 1949, as in 1948, it was demonstrated that patients with cancer of the mouth and skin are the last to seek medical advice, while leukemia, Hodgkin's, and cancer of the central nervous system are the types of malignancy that send patients to their physicians earliest.

Over half of the patients with cancer of the digestive tract, female genital organs, breast, respiratory tract, and male genital organs (other than prostate) representing 68 per cent of the total cases reported, were hospitalized in less than a week after first seeing a physician.

Comparison was made, by site, of the Minneapolis, Saint Paul, and Duluth cases with the total picture. No significant difference was observed.

Summary and Conclusions

1. A statistical analysis of 5,473 cancer cases reported as discharged by Minnesota hospitals during the period January 1 to December 31, 1949, is presented. This represents an increase of 297 cases over the 1948 total of 5,176.

2. The current (1949) report represents voluntary participation by 90 per cent of Minnesota's hospitals. In the reporting of cancer cases, Minnesota ranks very high among states using a voluntary hospital reporting system.

3. Despite an increase in number of cases reported in 1949 over 1948, incidence of cancer, by site, among Minnesota hospital patients was virtually the same in 1949 as in 1948.

4. More accurate reporting is desirable regarding duration of delay by patients in reporting symptoms to physicians and by physicians in hospitalizing patients.

5. Much more intensive education of the public is desirable regarding the recognition of symptoms of cancers of the mouth and skin, which offer the best prognosis yet are usually the latest to be reported to physicians.

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The final diagnosis in pulmonary tuberculosis rests upon the demonstration of the tubercle bacillus just as that of carcinoma of the lungs depends upon histologic proof. A reasonable certainty of predicted diagnosis can be obtained in about four-fifths of the cases with only the usual x-ray examination such as posteroanterior, oblique or lateral films.—MERRILL C. SOSMAN, M.D., New England J. Med., June 1, 1950.

Today, because of procedures which have become routine, the private physician's office is a bulwark against such diseases as smallpox and diphtheria. In like manner, it can become one of the most effective agencies for tuberculosis control. By promoting such a public health measure, the general practitioners of the nation would be acting in line with the great tradition of the profession as a force for prevention as well as cure of disease. —A. C. CHRISTIE, M.D., *Pub. Health Rep.,* June 2, 1950.

INFANT METHEMOGLOBINEMIA IN MINNESOTA DUE TO NITRATES IN WELL WATER

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IT should be emphasized at the outset that this is not primarily a clinical study. Comparatively few infants were examined and none was treated by the State Health Department. The data were furnished by the attending physicians but many physicians were visited to obtain more complete information. Most of the field work, however, was devoted to the engineering aspects of the water supplies. This was basically a study of a public health problem. The study was inaugurated to determine whether methemoglobinemia due to nitrates in well water had occurred in the past, whether it was still occurring, its frequency and its distribution. In addition, information was desired as to the characteristic signs and symptoms, the diagnosis and the treatment, particularly the preventive treatment. This information was made available to all physicians so that they might more readily recognize this disease and more adequately treat it. Toward this end the services of a pediatric consultant were made available as well as certain laboratory procedures not readily available in the rural areas. This study was a joint undertaking by the Division of Maternal and Child Health interested in the infants, and by the Section of Environmental Sanitation concerned with the toxic chemical in the water, its concentration, its variations, its distribution, and in methods of reducing or eliminating the chemical (nitrate) from the water. The subject will therefore be discussed from these two aspects.

It has been known for some time that the ingestion or absorption of various drugs such as sulfonamides, nitrobenzene compounds, acetanilid, bismuth subnitrate, sulphates, nitrates, and chlorates is capable of producing a cellular type of methemoglobinemia.[1] This is the acquired type, in contrast to congenital idiopathic methemoglobinemia, of which fifteen proved cases have been reported.[6] When no toxic agent could be detected in the acquired type, it was usually spoken of as idiopathic cyanosis.

In 1940, Schwartz and Rector[24] reported a case of methemoglobinemia of unknown origin in a two weeks' old infant living in Montana, fed on diluted evaporated milk formula, which was successfully treated with methylene blue solution. The physical examination was negative except for abnormal color of the skin. The blood contained 57 per cent methemoglobin, but the water used in the formula was not examined for nitrates. This may have been, however, a case of nitrate poisoning from well water, as such cases have since been reported in Montana.

In 1945, Comly[5] discovered the etiologic factor in two Iowa infants about one month of age who probably would have been considered as cases of idiopathic cyanosis. Interestingly enough, the father of the first infant pointed out the answer by suggesting the possibility of a peculiar reaction between the well water and the soy bean preparation used in the formula, producing a poison which caused the infant's condition. An open-mindedness on the part of the admitting physician to what appeared to be a "cock and bull" theory led to analysis of the well water. This showed a high nitrate content and thus the etiologic factor was discovered.

Following Comly's report of two proved cases and seven suspected cases from rural Iowa, Faucett and Miller[8] reported three cases in Kansas, and Ferrant[9] reported two cases from Belgium. Since then, cases have been reported from rural Manitoba,[15,16] Ontario,[15] and Saskatchewan,[22] Illinois,[29,30] Iowa,[2,11] Nebraska,[23,27] Michigan,[18,21] Kansas[10] and several other states. New York State reported its first two cases in July, 1949.[20] The condition, therefore, is apparently quite widespread in certain rural parts of the United States and Canada.

Medical Aspects

The first case of methemoglobinemia in Minnesota was reported in January, 1947, by a physician at Tyler, in southern Minnesota. Since then,

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Aided in part by a grant from the United States Children's Bureau.

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Presented at University of Minnesota General Staff Meeting, March 10, 1950 and published in *Bulletin of the University of Minnesota Hospitals and Minnesota Medical Foundation*, March 10, 1950.

a total of 146 cases, including fourteen deaths, have been voluntarily reported to the Minnesota Department of Health, since methemoglobinemia is not a reportable disease.

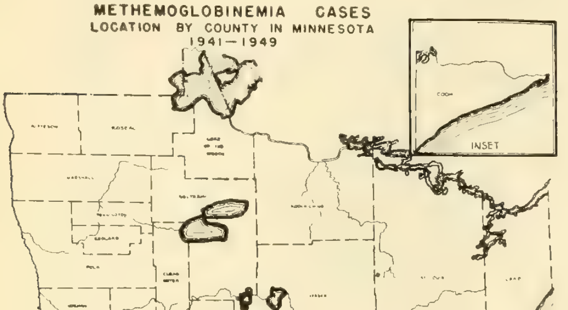

Fig. 1. Location by county of methemoglobinemia cases in Minnesota, 1941-1949.

As physicians in Minnesota became more familiar with this condition, methemoglobinemia was considered more often in differential diagnosis as evidenced by requests for methemoglobin determinations in cyanotic infants as well as frequent requests for analysis of suspected farm wells. Doubtless, many mild cases which cleared up promptly were never reported. Familiarity with this condition by physicians as well as rural parents has apparently been responsible for a markedly decreasing incidence of reported cases in 1949, only twelve cases out of a three-year total of 129 cases in 1947, 1948, and 1949. The last case was reported in July, 1949.

Distribution of Cases.—Before discussing the findings, it might be well to point out the distribution of cases in this series. As can be seen from the spot map of Minnesota (Fig. 1) practically all of the cases have occurred in the southern half of the state and most of them in southwestern Minnesota. There have been only three cases north of the midline of the state, with Detroit Lakes, in Becker County, the most northerly reported case. No cases have been reported in the northern section of the state.

Seasonal Incidence.—The incidence of cases of methemoglobinemia varied from month to month. In 139 cases out of our 146 reported cases with reliable date of onset, the highest incidence occurred in June with nineteen cases, October with eighteen and April with sixteen cases; the lowest number occurred in November with six cases. The seven cases omitted above were seen by physicians between 1941 and 1946 before our study began, which accounts for the lack of data.

Of the 129 cases that occurred in 1947, 1948, and 1949, almost one-third occurred in the second quarter—April, May and June—(31.8 per cent). The balance of the cases were more or less equally distributed in the other three quarters. The actual percentage of births in Minnesota during the same quarters were 25.0, 24.6, 26.3 and 24.1 respectively. There was a marked increase in the percentage of cases in the second quarter in comparison with the percentage of births in the same quarter. Any significance is, however, questionable because of the small number of reported cases, totaling forty-one, in comparison with the births which totalled 54,415.

It should be stated that it has not been possible to demonstrate any significant seasonal variations in the concentration of nitrate nitrogen in farm or municipal wells by periodic samplings carried out on a number of water supplies. This will be discussed in more detail under water supply aspects.

Sex.—There were eighty males and sixty-six females in the study.

Age.—As to age at onset of symptoms, over half occurred between two and four weeks of age; almost three fourths occurred between two and six weeks of age; over 90 per cent occurred under two months; and only 8.3 per cent were between two and five months of age. The youngest case was seven days old and the oldest was five months old.

Feeding.—There were twenty-one infants who were breast fed for a variable period of from one to four weeks before being changed to a formula containing well water. These infants, therefore, developed symptoms at an age from one to four weeks later than the non-breast fed infants.

The number of days the infant was on well water before symptoms developed was dependent on a number of factors, such as the nitrate nitrogen content of water, the amount of water in formula, amount and frequency of feeding, supplemental water feeding, length of time water was boiled, various physiologic considerations, and probably other unknown factors.

More than half of the 114 infants on whom this information is available (sixty-one cases) developed symptoms in one to three weeks after being on a formula requiring considerable water as a diluent. Eighteen per cent of these infants were on well water more than thirty days, the longest period being sixty days; about 15 per cent developed symptoms in less than seven days. The shortest period before symptoms developed was one day, in a two-month-old infant, on an evaporated milk formula diluted with water containing 140 parts per million of nitrate nitrogen. In this case the water was boiled for over thirty minutes to make sure all the "bugs" were killed. As a result, the nitrates were concentrated almost threefold by evaporation of water. This was demonstrated in the laboratory by boiling a sample of water from this particular well for thirty minutes. Before boiling, the nitrate nitrogen content was 140 parts per million; after thirty minutes boiling it was 410 parts per million as a result of evaporation.

Symptoms.—The characteristic symptom is a grayish blue or brownish blue cyanosis which begins around the lips, spreads to the fingers and toes, the face, and eventually covers the entire body. This occurred in all cases. When well developed, it is quite obvious. In early or mild cases the mother may not notice the cyanosis until her attention is called to it by a relative or neighbor. Incidentally, farmers who have become familiar with this condition call these infants "blue water babies." In several cases a physician making a routine periodic physical examination first noted the cyanosis.

The formulas used are of special interest. Evaporated and powered milk, which require large amounts of water as diluent, were used in 75 per cent of 116 cases with this information available. Diluted cow's milk was used in 25 per cent. No cases occurred among infants in this group who were breast fed, with only one possible exception. This was a three weeks' old infant who was breast fed, but during the four days preceding the onset of cyanosis was given, in addition, a formula of liquid SMA diluted with 1 to 1½ ounces of well water on only three occasions, plus 1½ ounces of water daily. On examination, in addition to the cyanosis there was a loud systolic murmur over the entire chest, diagnosed as congenital heart disease, from which he died some time later. Methemoglobin totaled 1.57 grams per 100 ml. of blood which constituted 11.5 per cent of the hemoglobin, and the well water contained 196 parts per million of nitrate nitrogen. It is difficult to understand how methemoglobinemia could be present with such a small quantity of formula and water and in view of the pathology present. In spite of this one possible exception, this would appear to be another reason for urging breast feeding during the first two months of life, especially in rural areas, as Medovy has suggested.[15]

TABLE I. INFANT FORMULAS IN 116 CASES OF METHEMOGLOBINEMIA

Type of Milk in Formula	Cases No.	Cases Per Cent
Evaporated	46	39.7
Powdered	41	35.3
Cows's	29	25.0
Breast fed	0	0

*Balance of 146 cases did not report formula used.

Differential Diagnosis.—In the differential diagnosis certain serious conditions must be ruled out. Among them are congenital heart disease, abnormalities of the respiratory tract such as pneumonia, atelectasis, pneumothorax, diaphragmatic hernia and congenital pulmonary and tracheal malformations, as well as "thymic syndrome." It should be remembered, as Ferrant[9] has pointed out, that there is a striking difference between the cyanosis and the alarming condition of the patient on the one hand and the normal pulse and respiration and lack of physical findings on the other. If the cyanosis is severe and persistent, systemic effects are producted due to anoxemia, and death may occur.[1,31]

Diagnosis of Methemoglobinemia.—The diagnosis of methemoglobinemia may be presumptive or absolute. In either case, however, it must first be suspected. A presumptive diagnosis may be made, if on removal of venous blood for a hemoglobin determination the blood is chocolate colored, and if there are more than 10 to 20 parts per million of nitrate nitrogen in the water used in the formula. If the blood is not examined, a presumptive diagnosis is justified if there is a spontaneous disappearance of cyanosis in twenty-four to forty-eight hours on changing the water in the formula, and the nitrate nitrogen content of the water used exceeds the suggested maximum of 10 to 20 parts per million. In either case the history and physical finding should be typical. An absolute diagnosis is made by demonstrating a definite methemoglobin line on spectroscopic examination[1] or by the chemical analytic method of Evelyn and Malloy.[7]

TABLE II. METHEMOGLOBIN DETERMINATIONS*

Mhb. Gm/100 ml. of Blood	NO_3N ppm. in Well Water	Days on Formula	Formula and Well Water	Age at Onset in Days
0.355	66	19	SMA	24
0.65	40	11	Evap.	25
0.97	100	49	Biolac	56
0.985	140	1†	Evap.	64
2.5	73	18	SMA	24
3.00	110	47	SMA plus Biolac	58
3.05	110	20	2/3 dil. cow's milk	36
4.95	500	9	1/2 dil. cow's milk	45

*By method of Evelyn and Malloy.
†Water was boiled for over 30 minutes.

In the above eight cases the diagnosis was confirmed by methemoglobin determinations by the method of Evelyn and Malloy,[7] using an electric colorimeter which was transported to the bedside of the patient on long distance telephone request to the State Health Department from the attending physician. Facilities for methemoglobin determination were not available in the rural areas where cases occurred. The readings varied from a low of 0.35 grams per 100 ml. of blood two days after hospitalization, to a high of 4.95 grams per 100 ml. of blood.

Treatment.—Treatment in most cases consisted of changing the water used in the formula to an approved municipal supply, with prompt recovery. In forty-six infants oxygen was used, but most of the physicians did not think it was of any benefit. Furthermore, removal of the infant to a hospital automatically changes the water supply and is probably responsible for the recovery in twenty-four to forty-eight hours. In severe cases more active treatment becomes necessary. One per cent methylene blue solution, 1 to 2 mg. per kg. intravenously, may be life saving.[36] It was used in nine cases with prompt recovery, the cyanosis clearing up in less than half an hour.

Mortality.—There were fourteen deaths, a mortality rate of 9.6 per cent. No specific treatment was used in these cases since the condition was either not recognized or methylene blue solution was not readily available. It is of interest to note that four deaths were ascribed to thymic hypertrophy or syndrome, notwithstanding the fact that the symptoms were characteristic of methemoglobinemia, and the well water used in the infant's formula contained 70, 120, 150, and 200 parts per million of nitrate nitrogen, respectively. There were no autopsies done on these four infants. In Minnesota during 1947 and 1948, fifteen infant deaths were reported as due to hypertrophy of the thymus, of which the four mentioned above were actually deaths from methemoglobinemia. Many cases of cyanosis in early infancy in rural areas have probably been incorrectly treated for hypertrophy of the thymus in the past. Donahoe[5] reported five cases of cyanosis in babies on farm well water who had been given from two to eight x-ray treatments for suspected thymus enlargement, but which were cases of nitrate cyanosis. Two of the thymic deaths in this series received x-ray treatment. Several infants who recovered also received x-ray treatments. Dr. G. B. Logan, Section of Pediatrics at the Mayo Clinic, states,[13] "I do not believe that an enlarged thymus is a cause of death unless it can be shown by autopsy examination."

Typical Case Histories

Case 1.—Female infant, born October 1, 1948, and discharged from hospital October 6, 1948. The formula consisted of SMA and well water, equal parts, a total of 24 ounces daily and 4 to 5 ounces of supplemental water between feedings. At age of twenty-four days, vomiting occurred; on twenty-fifth day of life, cyanosis developed. The following day a physician made a diagnosis of congenital heart disease. Five days later the infant was hospitalized at a nearby clinic where a diagnosis of methemoglobinemia due to nitrates was made. Changing the water in the formula to an approved municipal supply resulted in recovery in two days. Blood examination showed the presence of methemoglobin to the extent of 2.5 grams/200 ml. of blood. Analysis of the well water showed nitrate nitrogen 73 ppm., sulphates 70 ppm. and chlorides 28 ppm. The formula was changed to 24 ounces pasteurized milk, 8 ounces water from municipal supply and Karo. There was no recurrence.

Case 2.—A female infant was discharged from the hospital to the farm home on an evaporated milk mixture. At the age of ten days vomiting developed and persisted for several days. At the age of twenty days a generalized grayish-blue cyanosis developed. On the twenty-second day of life the infant was hospitalized when fluoroscopic examination of the chest resulted in a diagnosis of hypertrophic thymus. Oxygen was given as well as x-ray treatments daily for three days. Symptoms cleared up and the infant was discharged. Three days later, while on the same formula containing well water, cyanosis became marked and the infant was hospitalized again. The physical examination of the heart, lungs, and thymus was negative and the cyanosis cleared up in three days without any treatment, other than the change of the water. Analysis of the water from a shallow farm well showed nitrate nitrogen 90 ppm., nitrite nitrogen 4 ppm., sulphates 100 ppm. and chlorides 140 ppm. The water used in the formula was changed and there was no recurrence.

Case 3.—Female infant, born August 10, 1947, weight 7 pounds, discharged from hospital August 16, 1947, on a Lactogen formula, 16 ounces daily. On twenty-second day of life, infant developed diarrhea. On the twenty-ninth day the infant was seen by a physician who found cyanosis of the face and chest, made worse on crying. Admitted to hospital with diagnosis of "infection of the stomach." Infant was discharged on fifth day when symptoms had cleared up. On return to the farm home the same well water was used and four days later diarrhea and cyanosis returned. The physician changed the water to a municipal supply with recovery and no further recurrence. The farm well water contained nitrate nitrogen 37 ppm., sulphates 14 ppm., and chlorides 33 ppm.

Case 4.—Male infant, born August 29, 1948, discharged September 3, 1948. The infant was breast-fed but on September 10, three days before symptoms appeared, the mother added a formula consisting of cow's milk 12 ounces and water 4 ounces. In addition, 8 ounces of supplemental water were given daily. On September 13 at the age of two weeks the infant developed fussiness, excessive crying, and cyanosis of lips during crying spells. Heart, lungs and thymus negative, temperature 96°. Diagnosis was methemoglobinemia. Treatment consisted of oxygen, with recovery in twenty-four hours. Hemoglobin 69 per cent, white cells 11,000, methemoglobin 4.95 grams/100 ml. Well water contained nitrate nitrogen 500 ppm., sulphates 980 ppm., chlorides 480 ppm.

Case 5.—Female infant, born November 1, 1948, birth weight 7 pounds 1½ ounces, discharged on seventh day. The formula consisted of Biolac 1 ounce and 1½ ounces of water, 4 ounces per feeding, five times daily, plus 10 ounces of supplemental water. The water was boiled five minutes. At the age of seven weeks diarrhea and fussiness developed. The mother then diluted the formula with additional well water. Three days later a grayish-blue cyanosis began around the lips and hands and became generalized, accompanied by listlessness. The following day the infant was sent to the hospital. The physical examination was negative except for a duskiness of the skin. A diagnosis was made of methemoglobinemia. On the physician's request a methemoglobin determination was made at the bedside that evening which showed 0.97 grams/100 ml. of blood and 10 grams of hemoglobin per 100 ml. of blood. Twelve hours later (the following morning) the methemoglobin had dropped to 0.49 grams/100 ml. with clearing of the cyanosis. The mother was advised to use water from a neighboring municipal supply. The well water previously used contained nitrate nitrogen 100 ppm., sulphates 1200 ppm. and chlorides 210 ppm. Five minutes of boiling increased the nitrate nitrogen content to 166.25 ppm. No recurrence of symptoms.

Case 6.—Female infant born June 3, 1947, weight 7 pounds 15 ounces, discharged from hospital June 12, 1947, on formula of Carnation milk 14 ounces, water 21 ounces, and dextromaltose 7 tablespoons, with 5 ounces of supplemental water, boiled for ten minutes. At routine physical check-up at age of three weeks a physician noted cyanosis. City water was substituted with recovery in twenty-four hours and no recurrence. Analysis of farm well water showed nitrate nitrogen 62 ppm., sulphates 360 ppm., and chlorides 84 ppm.

Discussion

The question as to why only young infants, usually under two months of age, and not older members of the family develop cyanosis is difficult to answer. Incidentally, not all young infants develop this condition. There have been a number of instances in this series where one infant developed cyanosis, whereas a sibling, born one or two years previously, fed on a simliar formula and using water from the same well, failed to develop cyanosis. Older children and adults, drinking the same water, did not develop this condition.

According to Comly,[3] there are a number of factors which make an infant more susceptible to nitrate cyanosis than older persons. The most important single factor, in his opinion, is that the infant has less oxidizable hemoglobin than an adult. Other factors suggested are: that there is a high fluid intake with greater turnover of water in proportion to body weight; that the intestinal flora may contain more nitrite converters; that the infant's intestinal mucosa is more easily damaged and favors absorption of nitrites; that the limited excretory power of the young infant's kidney may favor nitrogen retention; and that nitrate ions may be more firmly bound by infantile hemoglobin because of immaturity of certain enzymes.

According to Ferrant[9] nitrates in well water are probably more toxic for newborn infants than for adults, especially if the infants have digestive disorders. This may be a factor, as 14 per cent in this series had diarrhea.

Cornblath and Hartmann,[4] however, claim that only younger infants develop methemoglobinemia upon ingestion of water containing nitrates, because of the low gastric acidity characteristic of the neonatal period.[19] As a result of experimental work, they postulate that if there is no free acid in the stomach and the pH of the gastric juice is over 4.0, nitrite-producing organisms can exist high in the gastrointestinal tract in sufficient number to reduce nitrates to nitrites before the former can be completely absorbed. In their control group of infants, the gastric acidity was increased by lactic acid milk feeding. In these cases they were unable to produce methemoglobinemia with mixtures containing high nitrate content. This appears to be a reasonable explanation. In three cases of methemoglobinemia in this reported series the pH was 4.5, 5.0 and 5.5, respectively.

One final factor must be mentioned. Apparently, the cyanosis may clear up spontaneously when the infant becomes older. This may be due to the fact, as pointed out by Cornblath and Hartmann[4] and others,[19,25] that the gastric acidity increases in older infants. This was illustrated in this series where three cases occurred in one family, one case in 1941, one in 1942 and one in 1944. All three infants developed cyanosis, vomiting, diarrhea and excessive crying at the age of one week while on a SMA formula. In the first two cases the symptoms cleared up at the age of three months with no treatment and with no change in the farm well water used in the formula. The infant born in 1944 was hospitalized when cyanosis developed, and this cleared up in a few days. On returning to the farm home the cyanosis recurred. Nothwithstanding the skepticism of the family physician, the parents changed the water, with prompt clearing up of all symptoms.

There are undoubtedly, however, other factors, and these are all debatable theories.

In passing, it might be of interest to mention a veterinary disease of similar nature as an interesting sidelight. In the spring of 1949 a herd of cattle in rural Manitoba became ill after eating sugar beet tops.[27] Cyanosis was a prominent symptom, giving the appearance of "purple cows." The blood was chocolate-brown in color and methemoglobin was demonstrated. Methylene blue solution was successfully used in treatment but a number of cows died. Analysis of the sugar beet tops showed a high nitrate content but the water contained no nitrates.

While no such cases in farm animals have been reported in Minnesota, this condition is not new. In 1937 a review[14] was made of similar appearance of "purple cows" which had occurred in Colorado and Wyoming due to eating oathay or straw. This condition has occurred since 1923 and has been called "oathay disease." Methemoglobin was demonstrated in the blood, and the oathay and oats contained large amounts of potassium nitrate. Unfortunately, the water used was not analyzed for nitrate. Apparently horses and sheep may also suffer from this type of poisoning. In certain areas in these two states, other plants such as certain weeds, wheat, barley, and cane sorghum sometimes contain sufficient nitrates to cause methemoglobinemia. It has also been reported in sheep in South Africa.

Résumé of Water Supply Aspects*

Nitrate determinations on samples from water supplies were made in the earlier days of the Minnesota Department of Health but were gradually discontinued as a part of the sanitary analysis with the advent of modern bacteriological methods. The health department's interest in the nitrate concentrations of water supplies in the state has been renewed since the first suspected case of methemoglobinemia was reported at Tyler, Minnesota, in January, 1947. From January, 1947, to January, 1950, investigations were made of all water supplies which were reported to be, or suspected of being, involved in cases of methemoglobinemia. In many instances physicians were interviewed in an attempt to determine whether the problem was more widespread than existing information would indicate. The results of these interviews showed that there were, undoubtedly, many cases of methemoglobinemia which were either not being properly diagnosed or were not reported.

In January, 1949, a communication was sent to all physicians in the state asking them to report any suspected case of methemoglobinemia that

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*Certain tables, charts and graphs have been omitted.

TABLE III. NITRATE NITROGEN CONCENTRATION IN WELLS CONCERNED IN METHEMOGLOBINEMIA CASES*

NO_3N ppm.	Type of Well Dug	 Drilled
Less than 10	0	0
10-20	2	0
21-50	25	1
51-100	52	2
Over 100	50	1

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*The phenoldisulfonic method described in the ninth edition of "Standard Methods of the Examination of Water and Sewage" was used for determining the NO_3N concentration for these tests and all others reported in this paper.

had come to their attention in the past several years. The physicians were also asked to notify the department immediately of any new cases.

A study was made of the 146 old and new cases reported as a result of this communication. Each study consisted of accumulating all epidemiological data and obtaining all pertinent information on the water supply involved. Dug wells were found to be the source of water in 129 cases, and drilled wells in four cases. Eleven of the wells were involved in more than one case and two wells caved in before samples were obtained. None of the wells contained less than 10 ppm. nitrate nitrogen (NO_3N) as shown in Table III. (A concentration of 10 ppm. is the maximum recommended by most workers.[3,27,29])

Only two wells contained between 10 and 20 ppm. NO_3N. Insufficient clinical data were available on both of these cases, and they are considered questionable. The samples from many of the 26 wells which contained 21 to 50 ppm. were collected a year or more after a methemoglobinemia case had occurred, and in some instances the well had been abandoned subsequent to the case of methemoglobinemia. The lowest nitrate nitrogen on a sample collected at the time of the infant's illness was 36 ppm.; the highest was 500 ppm.

From the information obtained on the cases reported early in the study and from data published by other workers,[2,10,11,23,27,28] it was considered desirable to determine what factors might influence the nitrate concentration of water from wells. Among the questions which occurred in this connection were the effects on nitrate concentration of pumping, seasonal variations, location and construction, depth and type of wells, and the geology of the area.

Effects of Pumping on Nitrate Concentration.—In order that sampling errors might be eliminated insofar as possible, it was considered necessary that the effect of pumping and the time of sample collection on the nitrate concentration be determined.

Four test runs were made on three different wells. Three of the runs were made over periods of one hour each, with samples being collected every minute for the first five minutes, and every five minutes thereafter. The fourth run was made with samples being collected every hour for a period of six hours. It was concluded from these pumping tests that no significant change in the nitrate concentration is noted with length of pumping, and that the time of collection of the sample after pumping begins is not critical.

Effects of Seasonal Variation on Nitrate Concentration.—To determine the effects of seasonal variation on nitrate concentration, arrangements were made to have samples submitted from certain specified municipal and private wells at routine intervals.

Municipal Supplies.—During this study, twenty-eight (5.4 per cent) of the 514 municipal supplies in the state were found to contain over 5 ppm. NO_3N; sixteen (3.1 per cent) of these contained 10 ppm. or more. The highest concentration was 27 ppm. in a dug well used as the source for a municipal supply in the section of the state from which most of the methemoglobinemia cases have been reported. The health officer of this community advised all residents not to use this water for infant formulas. No cases of methemoglobinemia have been reported from this supply. Eight supplies, ranging in nitrate nitrogen from 5 to 27 ppm., were selected for bi-weekly sampling which was begun in February, 1949. Samples were collected from the sources of supply and from the distribution system in each instance.

Private Supplies.—Four of the wells involved in cases of methemoglobinemia were sampled bi-weekly beginning in February, 1949. These included two wells which were later reconstructed. The remaining two were dug wells, one at Tyler (Lincoln County), and the other at Woodstock (Pipestone County), both of which were located satisfactorily. A fifth supply, a drilled well located one-half mile west of the reconstructed well at Luverne, was also sampled, although this well was not involved in a case.

These periodic samplings were continued for

TABLE IV. PHYSICAL FEATURES AND NITRATE CONCENTRATIONS OF WELLS INVOLVED IN CASES

Number surveyed: 133

Physical Features	NO₃N Concentrations—ppm 10 - 20* Dug	10 - 20* Drilled	21 - 50 Dug	21 - 50 Drilled	51 - 100 Dug	51 - 100 Drilled	Over 100 Dug	Over 100 Drilled
Location:								
Satisfactory	1		5		16		13	
Unsatisfactory			19	1	30	2	34	1
No Data	1		1		6		3	
Construction:								
Curbing:								
Wood			6		15		13	
Concrete tile	1		12		29		28	
Rock or brick			3				3	
Metal				1		2		1
No data	1		4		8		6	
Platform:								
Wood	1		23		39	2	42	1
Concrete					6		5	
Metal					1			
None				1				
No data	1		2		6		3	
Depth—in feet:								
Less than 20			3		3		5	
20-40	1		7	1	20		17	
41-60			5		3		6	
61-75			1		5		3	1
76-100					4	1	3	
101-150			1		1		1	
Over 150					1	1		
No data	1		8		15		15	

*No wells contained less than 10 ppm.

a period of one year. From the data obtained, it is concluded, within the limits of this study, that the nitrate concentration of a well water remains fairly constant and that seasonal variations do not occur.

Effects of Location and Construction on Nitrate Concentration.—An analysis of the data obtained on the location and construction of the 133 wells investigated in connection with cases of methemoglobinemia showed that none was both located and constructed satisfactorily as judged by the standards of the Minnesota Department of Health. (These standards for safe water supplies specify that a well should be located at least 50 feet from all sources of contamination such as barnyards, privies, et cetera. The well should be provided with a water-tight casing which extends at least 10 feet below and 1 foot above the grade. Vitreous and concrete tile, wood, and galvanized sheet metal curbings are not acceptable. A reinforced concrete platform which extends at least 2 feet from the well casing in all directions should cover the well. A tight seal at the pump base and a stuffing box head on the pump are also specified. Pit construction is not approved.)

None of the drilled wells and only thirty-five of the dug wells were located satisfactorily as shown in Table IV. Seventy-four wells were located within 50 feet of a source of animal contamination (barnyard, hog pen, et cetera) and thirteen within 50 feet of a source of human contamination (privy or cesspool). No data were obtained on eleven supplies.

Wood curbing was used in thirty-four wells, concrete tile in seventy. All but thirteen of the 121 wells on which data were obtained had wooden platforms.

Since no conclusions could be reached from the preceding data on the significance of location and construction on nitrate concentration, a survey was undertaken of all school wells in Nobles and Kandiyohi Counties. Wells at farms adjacent to the schools were also surveyed and used as a basis of comparison, since it was believed that the school environment afforded well locations which are normally free of gross organic pollution as contrasted with sites generally found in farmyards.

In the Nobles County Survey, thirty rural school and sixty-four farm wells were studied. The nitrate concentration in the school wells was lower than in the nearby farm wells in all but three instances.

Sixty-eight school and fifteen farm supplies were studied in the Kandiyoki County Survey. Only one of the school wells and six of the farm supplies contained over 10 ppm. NO_3N. Wells for the most part were of drilled or driven construction as contrasted with a preponderance of dug wells in the Nobles County Survey.

From the data obtained on these two surveys, it appeared that school wells containing over 10 ppm. NO_3N occur less frequently than do comparable farm wells. It also appears that in the case of dug and of drilled wells, the location factor does not have too much bearing on whether the water will yield a high nitrate content or not.

In an attempt to further determine the effects of construction on the nitrate content of a well, two wells which were high in nitrate and which had been sampled over a period of at least six months, were reconstructed. The wells chosen were a satisfactorily located dug well of 30-foot depth located outside the city limits of New Ulm in Brown County, and a poorly located drilled well, 71 feet deep, located three miles southwest of Luverne in Rock County.

The upper ten feet of each well were reconstructed so as to eliminate the possibility of contamination entering the well from surface drainage. Sampling of the wells after reconstruction did not show a significant reduction in the nitrate concentration. Therefore, contrary to work done by Sangor,[23] good construction for a depth of ten feet failed to exclude nitrate.

Effect of Depth and Type on Nitrate Concentration.—From a tabulation of the data obtained from all the well studies, it was apparent that there is a greater probability of high nitrate concentration occurring in shallow wells than in deep wells. Dug wells are more frequently the source of water high in nitrate than are drilled wells. It is significant that in the dug wells, a very large percentage (62 per cent) of the wells showing nitrates in excess of 10 parts per million were less than 75 feet in depth. In general, it can be said that, within the limits of this study, nitrate can be expected to occur more frequently in the shallow wells (75 feet or less) than in the deep wells.

Effect of Geology on Nitrate Concentration.—During the period January 1, 1947, to August 1, 1949, the laboratory made nitrate determinations on 2,912 water samples. Approximately 800 were submitted specifically for nitrate determination; the remainder were collected primarily for some other reason. Of these samples, 441 (15 per cent) collected from wells in fifty-five counties contained over 10 ppm. NO_3N. The highest concentration found in each county is charted in Figure 2. The white areas indicate counties in which the highest NO_3N concentration of samples included in this study is less than 10 ppm. The vertical-lined area, predominating in the southwest corner, indicates the occurrence of NO_3N concentrations of over 100 ppm. The southwestern section is the area from which most of the methemoglobinemia cases have been reported.

A review of the geology of the State of Minnesota shows that it is, for the most part, a heavily glaciated area, and that most instances where high nitrates have been encountered have been in wells drawing water from the drift. One characteristic common to the western portion of the state where high nitrates have been encountered is the heavy soil. Those counties which show less than ten parts per million nitrate nitrogen in the northern portion of the state very frequently have lighter soils containing considerable quantities of sand. At the present time, there are approximately ten counties in the southern half of the state which show no wells with concentrations of NO_3N over ten parts per million. It is not known whether more extensive studies would show similar results. Because of the peculiar distribution of water high in nitrates in Minnesota, it would appear that there are certain geological factors which are involved. What these factors are, and the nature of their operation, has not been established by this study.

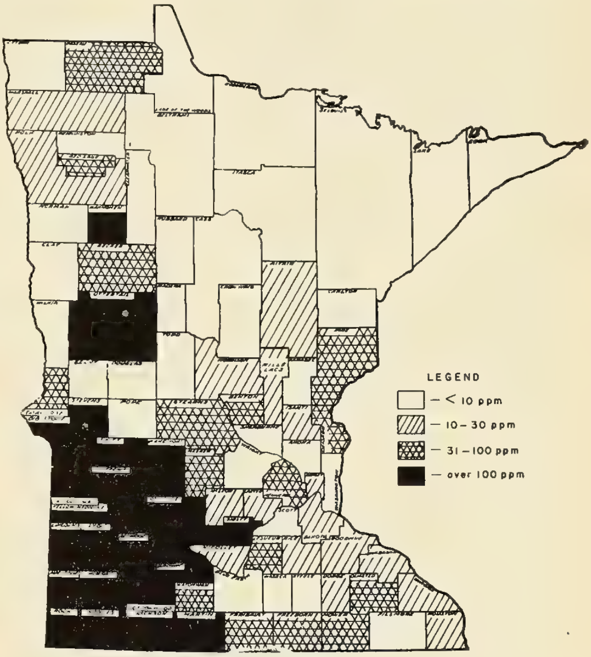

Fig. 2. Nitrate nitrogen concentration in well water. Highest concentration found in county, 1947-1949.

Summary

1. One hundred forty-six cases of methemoglobinemia, including fourteen deaths, due to nitrates in farm well water supplies in Minnesota are reported.

2. Dry and evaporated milk formulas as well as diluted cow's milk formulas which require large amounts of water as diluent are most dangerous.

3. Since no infants who were breast-fed, with one possible exception, developed methemoglobinemia, this would appear to be another argument in favor of breast feeding during the first two months of life, especially in rural areas.

4. Data are presented on water supplies suspected of being implicated in cases on infant methemoglobinemia in Minnesota. In all but two of these cases, the nitrate nitrogen content of the water was in excess of 20 ppm. In the two

exceptions mentioned, the clinical histories of the suspected cases were inconclusive.

5. Test runs on several wells did not show a significant change in the nitrate concentration with length of pumping.

6. Periodic sampling of municipal and private supplies over a one-year period indicate that the nitrate concentration of a well remains fairly constant and that significant seasonal variations do not occur.

7. Studies of rural school wells and similarly constructed nearby farm wells indicate that the nitrate content of the school well water was less than that of water from the farm wells.

8. Reconstruction of two wells failed to show, as some workers thought, that good well construction for a depth of ten feet could be expected to exclude nitrates.

9. Nitrates seem to occur more frequently in shallow wells (75 feet or less), than in deep wells.

10. No method was found by which nitrates could be removed from water. Recently Krueger[12] reported using the resin IRA-400 to remove nitrates from water. This resin works on the anion exchange principle which is similar to the cation exchange that takes place in zeolite softeners.

11. None of the cases of methemoglobinemia in Minnesota on which sufficient data were obtained occurred from using water containing less than 30 ppm. NO_3N in feeding an infant. However, 10 ppm. has been generally accepted as the point above which the water should be viewed with suspicion because of the possibility of a dangerous level being reached through other factors such as boiling.

* * *

Since this paper was written, four additional cases of methemoglobinemia have been reported to the Minnesota Department of Health.

Acknowledgment

H. M. Bosch, F. L. Woodward and H. R. Shipman of the Section of Environmental Sanitation, participated in the study. John Stam, M.D., Worthington Clinic, acted as Pediatric Consultant.

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PITUITARY ADRENOCORTICOTROPIC HORMONE (ACTH) IN ASTHMA

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FOLLOWING the elaboration and use of any therapeutic agent, extravagant claims are made. Certainly this has been the case with cortisone and pituitary adrenocorticotropic hormone (ACTH). The very grandeur of the vista unfolded by these agents and the possibilities inherent in them would make exaggeration almost impossible. It is the more advisable, therefore, to report failures as well as successes in their use.

Animals that have had an adrenalectomy show extreme susceptibility to anaphylactic shock as is well known and was long ago demonstrated but when these animals are given cortisone they are protected; and pretreatment injections of ACTH result in only minor reactions.[2] While we know comparatively little about the fundamental processes by which the adrenal corticosterones affect the great changes noted in the body, it is sufficient here to state that there is early in the course of treatment with ACTH or cortisone, physiological changes due to induced hyperactivity of the adrenal cortex; a fall in the eosinophile count; leukocytosis; sodium and chloride retention and associated water retention or excretion; elevated serum carbon-dioxide—combining powers; decreased sodium and chloride in the sweat; increases in urinary histamine, corticoides and seventeen keto steroids; increased gluconeogenesis with hyperglycemia; a diabetic-type of dextrose tolerance curve and increased deposition of liver glycogen; decreased inorganic serum phosphorous; increased uric acid excretion; decreased free serum cholesterol; increased calcium excretion; and a negative nitrogen balance.[4,5] In considering the effect of ACTH on allergic persons, in particular, we must also consider the euphoria induced, and the increased appetite and neuropsychiatric changes.[5] Interference with acetyl-choline cycle as reported by Torda and Wolff[9,10] with at times deficiency and at other times enhancement of *in vitro* synthesis is another important factor. Large doses of steroids have also been reported, by Selye,[8] as hypnotic in effect while Archer[1] in a recent letter in the *A.M.A. Journal* stresses the relationship of the pituitary adrenal axis to fat metabolism and to fatty infiltration of the liver—changes also associated with pregnancy and jaundice—conditions which at times benefit arthritis as well as asthma.

While the conditions treated with ACTH have included almost all serious ones the body is heir to, some of the most dramatic results have been reported in the field of allergy with just about 100 per cent at least encouraging though temporary results. Rose treated six patients with severe asthma.[7] The first two patients received 150 mg. of ACTH daily for two days and 100 mg. daily for two more days. The next four received 100 mg. daily for three days, 75 mg. daily for two days and 25 mg. the sixth day. He reports complete success in relief of asthma in four patients within forty-eight hours. The other two patients while not completely free of symptoms were decidedly improved. Though apparently only remissions, the results were certainly striking for the type of patients reported. Bordley[3] treated five patients with severe asthma with daily doses of 30 to 100 mg. of ACTH given at six hour intervals. Here also marked relief was obtained in four to forty-eight hours. Total ACTH given varied from 360 to 775 mg. Not only was the asthma relieved but in two patients nasal polyps disappeared though they recurred in twenty-three days and one month respectively. Randolph[6] reports thirteen cases of very serious asthma, two seasonal ragweed asthma and eleven perennial advanced cases of this disease. The majority would certainly be included in that terribly discouraging class of asthmatics referred to by Rockemann as "intrinsic;" and were further complicated by nasal polyps and aspirin sensitivity. As he points out these cases were chosen because of their very difficulty as diagnostic and therapeutic problems. Ten of these eleven severe asthmatics obtained marked relief of symptoms and remissions for from one week to five months following treatment with ACTH. Total dosage was 125 to 325 mg., while one patient could not be treated with the usual method and dosage due

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to fluid retention. The degree of relief varied from 50 per cent to complete comfort—the more satisfactory results being in patients with no clinical or x-ray evidence of emphysema, empyema or scarring. Even in those having recurrence of bronchial asthma after treatment, symptoms were "readily relieved following the inhalation of small amounts of epinephrine spray"—in decided though temporary contrast to the pretreatment condition. Their general status improved markedly—a condition not due to suggestion as placebos did not work in the same manner.

Because of these reports, it is to be understood that the privilege of being able to use this drug was greeted by me with great enthusiasm and anticipation. The first two patients, I decided, would be really "tough ones"—whom I had followed, and used up my total therapeutic armamentarium as well as that of other men in the field. As the material was to be given every six hours and in order to follow the response to treatment especially as to the eosinophile count (to be sure the adrenals did respond) the patients were placed in a hospital. This was done in spite of the fact that, as is well known, hospitalization and rest are often great therapeutic agents in themselves which could very easily confuse one as to the real agent responsible for improvement. In these people, however, because of the length of previous observation, I believed I could easily detect real improvement if it resulted as promised.

Case 1.—This patient, a man, aged forty-five, married, working in a furniture shop, has had asthma for twenty years. He has had a perennial associated stuffy nose with "sinusitis" for fifteen years. His asthma is aggravated by exertion, excitement, laughing, and changes of temperature. For the past ten years, he has had attacks at least once a night and he uses adrenalin by spray and aminophyllin suppositories with only partial relief. He was not appreciably improved by a stay in Arizona. Iodides, ephedrin, dietary regimes, desensitization with dust, fungi, vaccine, histamine have all been of little help. He has been hospitalized on many occassions and for varying periods for status asthmaticus. His past history is not remarkable except for nasal surgery fifteen years ago with poor results. His routine blood and urine were negative. The sedimentation rate was six. X-ray of the chest and electrocardiogram gave negative findings. This patient has been under my care since May 1949, and all usual procedures, including the antihistamine, antibarium, and antibiotic drugs were of no help. He was given 260 mg. of ACTH for a period of seventy-two hours with no marked benefit, on either the symptoms or vital capacity while in the hospital. That the adrenals did respond was shown by the drop in the total eosinophile count from 90 to 0. The drug was given every six hours.

Case 2.—This patient, a woman, aged forty-nine, married, a former nurse and present hotel proprietor, gives a history of asthma since 1943. She also had a perennial stuffy nose in 1947 and 1948 but no asthma at that time. The condition is aggravated by hard work, dust, colds, and cold air. Partial relief is at times obtained by aminophyllin, ephedrin, and adrenalin by hypo. The past history is not remarkable except for irrigation of the sinuses in 1949. The physical examination, x-ray, and electrocardiograms were normal. Routine blood and urine examination were not helpful. This patient has been under my care since January, 1950, and the usual procedures including elimination diets; sedation; desensitization with dust, fungi, vaccine, histamine; antihistamine, antibarium, and antibiotic drugs were tried but in May 1950, she became very seriously incapacitated by her condition and a trial of ACTH was advised. ACTH was given for 96 hours for a total of 360 mg. with no marked effect. The total eosinophile count showed the adrenalin stimulation by a marked drop from 16090 to 680 to 90 to 0. As a matter of fact she required repeated hypos of adrenalin and aminophyllin while being given ACTH as well as after treatment. The drug was given every six hours.

Case 3.—This patient, a man, aged fifty-six, married, is a patient of Dr. Henry Ulrich. He has had asthmatic attacks since January, 1950, and had a particularly difficult period while in Houston, Texas. His past history is non-contributory except that he has had nasal polyps for many years which have been removed periodically every six months. Duodenal ulcer in 1949 improved under diet. He is extremely sensitive to aspirin. He claims he is allergic to tomatoes. Physical examination was practically negative, except for nasal polyps. His chest, whenever examined, was clinically free from asthma. The usual therapy (bronchodilators) including rest and sedation improved the patient somewhat. After one week of hospitalization he was discharged on May 25, 1950. His routine blood and urine examinations were negative. The eosinophile count was 5 per cent. On June 2 and 3, he received 80 mg. of ACTH at twelve-hour intervals for four days. Three days later he reported no improvement in his attacks but he said his cough seems less and his polyps "were gone."

It is difficult for me to understand the effect of ACTH in these three cases of asthma—a disease in which therapy is very difficult to assay in view of the tremendous psychic factors. The dosage was as reported; the response of the adrenals was certainly there, as noted in the eosinophile counts. It also seems that, if relief is to be obtained,

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RENAL TUMORS

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THE FOLLOWING material resolves itself into a generalized discussion of renal tumors, which is a group none too common but most interesting. It is far from being exhaustive or even a beginning review of the literature on the subject, but if it does nothing more than give a brief review of their clinical and pathological features, their incidence, etiology, symptomatology and so forth, its aim will have been fulfilled. It is also an attempt to evaluate and correlate the pertinent facts about all the cases in the hospital records.

The cases surveyed were those dating back twenty-six years in the records of St. Mary's Hospital, Duluth, and include all kidney tumors that have been classified since the inception of adequate record room files. The cases in this survey include only those that have been proven to be kidney tumors, either by surgical removal and pathological specimen or at autopsy. Up to 1936, there were only twenty-five proven cases listed. So we see that over half of the cases have been recorded since that time. Better investigative urology and more autopsies have brought many to light, no doubt. The total series is not large but sufficiently comprehensive to justify some conclusions and we must not lose sight of the fact that their incidence in the realm of neoplasm is comparatively rare. Some of the cases, it is admitted, were not diagnosed clinically but were incidental findings in routine autopsies.

The classifications of renal tumors are almost as multiple as those of arthritis and much recently acquired knowledge as to their pathology has cleared up this phase considerably. There are both the malignant and the benign. From a standpoint of interest, a typical classification of renal new growths about thirty years ago was chiefly a pathological one. They were divided into three groups.

Group I—Composed of those that took their origin from the cells of the adult or fetal kidney. These were called "homologous" growths and consisted of:

A. Benign
  1. Connective tissue origin (fibroma (lipoma (fibrolipoma (angioma
  2. Epithelial origin (papilloma (adenoma

B. Malignant
  1. Connective tissue origin
    (a) round cell } mesodermal
    (b) spindle cell } mesodermal
  2. Epithelial origin—epitheliomata or carcinoma.

Group II—Composed of those that take their origin from cells or tissues that do not belong to the kidney proper, but which have been included in this organ during its development. These were called "heterologous" growths and included:

A. Large fatty tumors, the "struma lipomatoides aberrata renis" of Grawitz which he described in 1883 and which are now termed hypernephromata, the name coined by Lubarsch in 1894.

B. Mixed growths
  (1) of muscle, bone, or cartilage.
  (2). rests from Wolffian body.
  (3) mesodermal rests—so-called Wilms' tumors.

Group III—Comprised of those enlargements which are tumors in a clinical sense only, and which form a pathological standpoint are retention cysts due to a non-patency of renal tubules.
  1. Single solitary cysts.
  2. Congenital cystic kidneys.

This is essentially an outmoded and bulky classification based on embryological etiology and derivation. Since Grawitz's paper of 1883, a tremendous amount of literature has accumulated dealing with classification, but most of the discussions are concerned with either disproving or proving the etiological adrenal rest theory of Grawitz. The latter's supporting arguments are:

1. Their position under the capsule of the kidney where adrenal rests are often found normally.
2. The cells of hypernephroma are similar in type to adrenal cells.
3. Characteristic fatty infiltration of the cells which is never found in kidney epithelium.
4. The presence of a limiting capsule around the tumor.
5. The arrangement of cells is similar to that in the adrenal cortex.

The opposition to Grawitz's hypothesis as advanced chiefly by Stoerck in 1908 and by Glynn in 1911 believe that:

1. Grawitz tumors are more frequent in the lower pole where adrenal rests are not found.

2. So-called fat cells of the hypernephroma are not fat but vacuolization related to the glycogen content of the cells.

3. It is a tumor of the cortex and not the capsule in which adrenal rests are formed.

4. That renal tumors never influence the growth of sexual characteristics as one would expect from superfluous adrenal tissue.

5. Finally, why should adrenal rests which are comparatively rare in the kidney produce hypernephroma which is the commonest kidney tumor while rests in other localities, although comparatively common, so rarely produce tumors?

TABLE I.

BENIGN	MALIGNANT
Adenoma	Hypernephroma-adenocarcinoma of renal cortex
Fibroma	Carcinoma
Lipoma	1. Adenocarcinoma-hypernephroma
Angioma	2. Papillary carcinoma
Papilloma (includes pelvis)	3. Squamous cell or Epithelioma
Cysts	Sarcoma
	1. Round
	2. Spindle
	3. Mixed
	Embryoma or Wilms' tumor
	1. Teratoma
	2. Rhabdomyoma
	3. Mixed tumors

TABLE II. PATHOLOGICAL INCIDENCE

	Garceau (Mass. Gen.)	Wilson (Rochester)	Smith (Mass. Gen.)	St. Mary's
Perirenal Sarcoma	1			
Papilloma	1	3		1
Hypernephroma	45–(53%)	71–(77%)	16–(40%)	34–(58%)
Carcinoma	3	5	7	2
Papillary Cystadenoma	4			
Papillary Adenomata	11			
Sarcoma	2	7	3	3
Lipoma	5			2
Fibroma	14	1	2 unknown	
Embryomata		3	1	6
Adenomata		1		
Adenocarcinoma			10	4
Papillary Carcinoma			3	4
Adenosarcoma				
Cystic Tumor				1
(Reniculus)				1
Totals	86	91	42	58

TABLE III.

	Barney	Braasch	Senator	Creevy	St. Mary's
Male	43 (58.1%)	51 (61%)	199 (65%)	59 (63%)	34 (59%)
Female	31 (41.9%)	32 (39%)	106 (35%)	35 (37%)	24 (41%)

At present, it may be stated that hypernephromas are peculiarly different histologically and stand out as a separate group. Their exact origin is still unsettled but there is now a fairly general acceptance of its renal rather than adrenal origin. The best grouping of kidney tumors to our mind, is not one which is on a pathological or etiological basis but a practical one of value clinically to the average practitioner who has forgotten a very liberal amount of pathological detail.

Table I constitutes a more simple and workable classification.

In incidence, hypernephroma is by far the most common in the adult while in children the embryomata or Wilms' tumor comprises the majority. Table II presents the incidence of tumor types for three other series in addition to our own.

It will be noted that in Smith's cases, the tumors are all malignant except two which were thought to be fibromas and, furthermore, that hypernephroma is the most common in all series. The percentage of these in our series, that is 58 per cent, is similar to the others. The average percentage of incidence in the four series is 57 per cent. The incidence of other tumor types in the various series differ widely sometimes, but this is probably due, in part, to the fact that different pathologists, each having their own individualities in pathological judgment and criteria, made the diagnoses. A microscopic section to one may appear as an adenocarcinoma while by another it may be interpreted as a cystadenocarcinoma, etc.

Let us consider incidence from the standpoint of sex. Most writers state that males are affected more than females, offering no explanation for this difference (Table III).

Heredity and trauma are not causative factors but trauma may be a precipitating cause of hemorrhage in a tumor already existent. Kraft reports a case of a man being struck by a plow following which he developed a mass in the flank. This remained the same for eighteen years but later at operation, there proved to be a superimposed medullary carcinoma. In our series, a man kicked by a cow nine months previously developed a carcinoma of the renal pelvis, but, of course, this may have been coincidental. It could be significant.

TABLE IV.

Years	Senator	Koster's Table (Keyes)	Creevy	St. Mary's
0–9	157	169		7
10–19	15		1	1
20–29	34		3	1
30–39	45		2	
40–49	42	125	22	8
50–59	96		22	17
60–69	57	128	30	18
70–79	13		1	5
80–89				1
	459	422	81	58

In Table IV, it will be seen that renal tumors are most prevalent during childhood and late adult life. At St. Mary's forty-nine of the fifty-eight cases were in patients over forty years of age.

Kelynack has also tabulated 160 cases, more than half of which occurred in the first decade of life; only fifteen between the ages of nine and thirty-five; and of the rest, over 50 per cent between the ages forty-five and sixty. Walker reports that almost all sarcomas occur in children before the fifth year (116 out of 138 cases). At St. Mary's three sarcomas occurred in adults and three in children.

Symptoms

The symptomatology of renal tumor is well defined. Hematuria, pain and tumor mass are the classical triad but it is not obligative that all these be present. When all are present, the growth is far advanced and beyond cure. *Hematuria is the most important symptom.* In eighty-three cases, Braasch found the first presenting symptom to be hematuria in 47 per cent, pain in 32 per cent and tumor in 15 per cent. Hinman found all three sypmtoms in 38 per cent. At St. Mary's, pain was present in 58 per cent, hematuria in 45 per cent and mass both subjectively or objectively palpated in 48 per cent. All three symptoms were found in only 6 per cent of the St. Mary's group. Hematuria in the beginning may be only microscopic but gross hemorrhage often results in clot formation with ensuing renal colic as the clots pass down the ureter. Bleeding may be spontaneous, and recur at long intervals of time which may lead to procrastination as to timely and proper investigation. In children, hematuria is notoriously absent. Dexter found hematuria in only one of forty-one in children and two French writers in 39 and 29 per cent respectively. As far as I could determine, no gross hematuria was recorded in our small group of children.

The second striking symptom is tumor mass which on palpation may be hard and nodular or soft and smooth. Many of the patients are aware of this mass and others experience only abdominal discomfort or fullness. Before extension outside the kidney, it is usually movable. With proper technique, that is, bimanual pressure, at the end of deep inspiration, with the patient in the lateral prone position, Israel was able to palpate enlargement in sixty-two of sixty-eight cases and Smith in sixty-eight of eighty or 84 per cent. "Ballotment renale" or Guyon's sign is sometimes elicited. In the St. Mary's series, tumor was found in 48 per cent.

Pain is probably the least diagnostic symptom. When not due to clot-passing with typical renal colic, a constant dull ache may be due to hydronephrosis, pull on the renal pedicle, or to involvement of adjacent nerves. There may also be pressure symptoms such as varicocele, due to compression of the spermatic veins or ascites and edema of extremities by pressure on the larger intro-abdominal veins. Intestinal obstruction may be caused by tumor pressure. Other associated symptoms, and sometimes the presenting symptoms, are gastrointestinal disturbances such as anorexia, indigestion, constipation, or diarrhea. Jaundice may be present if a right sided growth has extended to the liver. In the late stages, anemia and cachexia predominate. Patients presenting these symptoms are the ones in whom valuable time has been lost in arriving at a diagnosis and the ultimate prognosis thereby made worse. In a few cases, the symptoms from metastases to lungs and bone may be the first indication of the presence of the lesion. In one of our cases, a pyelonephritis of the opposite kidney obscured the true diagnosis for several months.

Fortunately, rapid avdances in the betterment of cystoscopic instruments and technique, have greatly facilitated the diagnosis of renal tumors. Before the development of intravenous pyelography, many cases of tumor were not diagnosed early because more troublesome cystoscopy was repeatedly postponed. It must be emphasized that all hematurias, painless or otherwise, should have exhaustive investigation and not be lightly passed off with the admonition that "if it happens again we'll look into it more thoroughly." It may be too late then for permanent cure. Retrograde pyelography has no peer but the intravenous technique is helpful as corroborative evidence and as a screening test. A negative intravenous pyelogram, however, should not be considered conclusive.

Too much reliance, on the other hand, must not be placed on a definite diagnosis from a pyelogram alone. Few show absolutely typical pictures with "spider leg" deformity of the calices, but the greater number show only partial filling defects of the pelvis. In practically all of our series, the x-ray diagnosis was merely "filling defect of the renal pelvis." Therefore, we see that the history and clinical findings, cystoscopy with pyelography and renal function determination are equally indispensable for early diagnosis.

A few more facts about the St. Mary's series. Presenting symptoms had been present for an average of about forty weeks. There were twenty-seven cases with proven metastases, or 49 per cent. These metastases were chiefly to the lung in thirteen cases or 45 per cent, to the bones in eleven cases or 40 per cent, to the lymph glands in eight cases or 30 per cent, and to the liver in five cases or 22 per cent. The bone metastases were chiefly to the spine and pelvis; one to the jaw and several to the ribs. Lymph gland involvement is usually to the retroperitoneal, cervical or mediastinal nodes. Renal function determinations such as P.S.P., indigo carmine, and blood chemistries were done in only twenty-seven or 47 per cent. It would seem that these procedures should have been done more frequently as part of a thorough urological investigation, even though not much information is usually gleaned from this source. Generally speaking, these function tests were usually reduced on the side of the lesion but rarely were the blood metabolites elevated, which is what we would expect with the other remaining kidney present and normal. Blood chemistries were done in only twenty-five cases. It is amazing that more blood chemistries were not done prior to nephrectomy because the latter would certainly be contraindicated in a semiuremic or uremic surgical risk. One such instance occurred where a nephrectomy was done in a case with an admission blood urea nitrogen of 76 and a creatinine of six- with death on the first postoperative day. Certainly, this was poor surgical judgment.

Associated diseases were irrelevant and commonplace but hypertension and urinary tract infection were quite prevalent. Varicoceles were present in two patients, and it is interesting to note that one case of adenosarcoma in a three-year-old was superimposed on a horseshoe kidney. The average hemoglobin was 62 per cent and the red blood cells 3.36. Positive urinary findings, either r.b.c., w.b.c. or albumin were present in 64 per cent. Three biopsies of a cervical gland, of bone and of the liver confirmed the diagnosis of hypernephroma in three instances. In one patient, simple pyelotomy was done for palliation.

Concerning the treatment of renal neoplasms, suffice it to say that early surgery plus preoperative or postoperative radiation or both, offers the only chance of complete cure. And, of course, it must be taken for granted that the kidney function in the remaining kidney is compatible with life. A thorough study should be made for metastases and many writers feel that even the presence of small or early metastases does not necessarily contraindicate nephrectomy.

Creevy believes that irradiation of metastases and recurrences is of definite value. Whether life is prolonged is debatable but there can be no doubt as to its palliative values in reducing pain. Dean believes that pulmonary metastases are radio sensitive and that bone lesions are not. Creevy believes they both respond equally. Most men feel that x-ray generally does not appreciably affect the percentage of cures. One point of note is that preoperative radiation may reduce a tumor in size to the point where it may be operable, whereas previously it was not. It seems to be rather generally agreed that x-ray treatment is most useful and is the best treatment for Wilms' tumor. Many men state that surgery is of no avail but it seems to me that every early case should have the benefit of surgery. Better results from x-ray therapy at the present day is expected because of improved techniques; high voltage machines, et cetera.

The percentage of five-year cures by all types of therapy are not too encouraging. The over-all average of five-year cures in percentage from a series of cases reported by Walters, Priestly, Braasch, Hyman and about five other authors is 23 per cent. This low percentage certainly speaks eloquently for early diagnosis. I could find no report of a five-year cure for a Wilms' tumor.

In the cases at St. Mary's, nephrectomy was done in 55 per cent. X-ray therapy was used in only 21 per cent of the cases. It was not possible to arrive at any definite percentage of five-year cures because of the insufficiency of follow-up data on the charts.

Conclusions

1. Much progress has been made in the classification and etiology of renal neoplasms in the last twenty years. The renal origin of hypernephroma is more tenable.

2. The classical symptomatic triad is pain, hematuria and mass and when all are present, the tumor is beyond all hope of cure.

3. Generally speaking, our cases compare favorably with other series reported as to age, incidence, tumor types and symptoms.

4. Surgery, if it is to be of any avail, must be done early and small metastases do not necessarily preclude surgery.

5. X-ray is a valuable adjunct to surgery and that it reduces pain, also.

6. Every case presenting one or more of the classical renal symptom triads should be cystoscoped immediately and studied urologically.

7. The charts studied in the series at St. Mary's were deficient chiefly in two categories:

(1) Poor follow-ups for evaluation of therapy and estimation of five-year cures.

(2) Many tests and investigative procedures done before admission had not been recorded and were, therefore, unknown. Incorporation on the hospital chart of such data would be of inestimable value in any statistical analysis.

PITUITARY ADRENOCORTICOTROPIC HORMONE

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we should get it fairly soon, as has been reported. Furthermore these patients did not have emphysema or other pulmonary diseases. Perhaps more prolonged or more intensive treatment is indicated. At any rate, here are three patients with severe asthma who did not respond to ACTH—a rarity, at least at present, in the literature of this remarkable drug.

Acknowledgment

I wish to thank Dr. Henry Ulrich for the use of the data on his case, and Dr. Edmund Flink for furnishing the ACTH.

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History of Medicine In Minnesota

MEDICINE AND ITS PRACTITIONERS IN OLMSTED COUNTY PRIOR TO 1900

NORA H. GUTHREY

Rochester, Minnesota

(Continued from July issue)

Lucy J. Bolt (Mrs. James H.) Easton, "magnetic healer" and "clairvoyant healer," holder of state exemption certificate No. 179-3 (filed in Olmsted County on October 23, 1883), was from the early eighteen sixties into the first decade of the twentieth century a practitioner in Olmsted County, in and near Rochester. She was a handsome woman, tall, large and blonde, kindly and sincere, an interesting character. Although conflicting statements are heard as to her merits as a practitioner, there is agreement that she had a large clientele who believed in her healing powers, and that certain established physicians of the regular school, although they would not consult with her, nevertheless on occasion advised patients to go to her, not for physical healing but "for the psychologic effect." As a highly respected person has said, "She really was magnetic and had a sense of diagnosis and treatment." One has only to mention her to old residents to hear anecdotes about her procedures and beliefs as a healer, and about her eccentricities; for example, she raised innumerable canaries, using the family living rooms as an aviary.

Lucy J. Bolt was born in New York State and came with her parents, pioneer farmers, to St. Charles Township, Winona County, in the early fifties. In 1856 she was the second teacher to preside over the district school of the township; in the autumn of that year she was married to James H. Easton, who was by turns innkeeper, farmer and photographer. Mr. Easton was a native of Massachusetts, it is said, the son of an itinerant herb doctor and journeyman carpenter, who sometimes was employed as a workman in the East by Henry Wadsworth Longfellow. The only child of James and Lucy Easton was James Hamlet Eugene Bolt Easton, born about 1859, whose magnificent baritone voice gave him place at social, church and public functions and supported him during his seven years as a law student (nongraduate) at Harvard University. In that period, the late seventies and early eighties, he once was a guest at the Longfellow home; the poet was interested, the story goes, in hearing from a native Minnesotan how "Hiawatha" was regarded in its locale.

In 1860 Mr. and Mrs. Easton established "the first art gallery" in St. Charles; in December, 1862, in Rochester, they were erecting a building on Broadway to house their photographic equipment. In the next decades, with Lucy Easton always her husband's assistant as well as a practitioner, they were in different locations. Sometimes the gallery was their home, and for many years they lived on their farm, three miles south of town on what is now Highway No. 63. By the eighties the Eastons had become the owners, and Hamlet the driver, of blooded horses, which they entered in races over a wide circuit of noted tracks in many states, with varying profit and loss. Of their horses, Badge, a splendid black pacer, "put Rochester on the map as far as turfmen's eyes were concerned." Others were Lebbius I. (originally from Eyota and named for Lebbius I. Ingham, a leading citizen of that village), Hal Crags and Pico. In August, 1896, the *American Sportsman*, quoted by the *Rochester Post,* declared that on every day that Badge was to race, Mrs. Easton would hold a séance and would telegraph her son the spirits' dictum, so that he might govern his pool of tickets accordingly.

From her ealiest arrival in Rochester, it has been recalled, Mrs. Easton held séances and began her magnetic healing, but it was not until later that she styled herself a practitioner of medicine and probably not until the eighties, after she had received her state exemption certificate, that she assumed the title of "doctor." In August, 1887, when her controversy with the city council was being aired in the *Rochester Post,* she stated, "Although I have practiced the healing art in this city upwards of seven years, I have never, nor have friends of my patients had occasion (except in a single instance) to send for an undertaker where the case has terminated in my hands." This was with regard to her alleged opinion on the condition of a young man who had been injured on July 4 by a gunpowder explosion when a cannon was fired during a civic celebration. The patient's mother had rejected the services of Dr. W. W. Mayo, "would have nobody but Mrs. Easton." Mrs. Easton, it was stated, had declared the patient dead and had sent for the undertaker, and had in due time presented a bill of $20 to the city. The report continued, "The council would pay for a physician, but would not pay for Mrs. Easton." An additional note was that when Mrs. Easton had left the patient's home, Dr. E. W. Cross was called, and that the patient was restored to health.

Many of Mrs. Easton's patients consulted her at the studio or the home, but often she was called into the city and the countryside. An early resident of Rochester, Oliver J. Niles, of Grand Rapids, then a boy in his teens, has said that when the Eastons were living on the farm, he often was sent out by different Rochester citizens, persons of comfortable circumstances and unquestioned judgment, to summon Mrs. Easton. In the office she conducted her treatments unaided; whenever she was called to the home of a patient, her husband accompanied her, and his knowledge of medicinal herbs that he had gained from his father was combined with her magnetic powers.

In the last years of the Eastons' life in Rochester their fortunes declined. In 1909 the noble racehorse Badge died. Before 1911 the family had removed to Florida.

Roswell Eaton (1823-1884), a resident of Rochester, Minnesota, from 1867 to 1884, did not practice his profession actively in the city. He was born in Sardinia, Erie County, New York, in 1823, and in 1841 removed with his parents to Walworth, Wisconsin. At Geneva, Wisconsin, he studied medicine with a Dr. Palmer, before attending lectures "at the medical college, Chicago, from which institution he graduated in 1856." He practiced medicine in Sharon, Wisconsin, for the next ten years, and in 1867 came to Rochester accompanied by his wife, Patience Matteson Eaton, a native of Shaftsbury, Vermont, to whom he was married at Sharon in 1857. There were no children of the marriage.

In Olmsted County, living on a tract of land at the northern limits of Rochester, Dr. Eaton had his chief interest in farming and dairying. His name appeared often in the newspapers of the city in connection with the Farmers Institute, a creamery in Rochester, and so forth. In the great cyclone of August 21, 1883, his house and barn were demolished and Dr. Eaton, carried several rods with the debris, was injured severely. On September 14, 1884, while helping a threshing crew on his place, he died suddenly from heart failure. In his obituary he was described as having been a Baptist, an upright citizen, a scholarly and well-informed man. Patience Matteson Eaton survived him twenty years, dying in early March, 1904, at the age of eighty-three years; her only surviving relative was her brother, Langford Matteson, a farmer north of Rochester.

Cyrus Bowers Eby (1872-1934) was the fifteenth appointee, in July, 1893, as an assistant physician on the staff of the Rochester State Hospital, Olmsted County.

It is well known that Dr. Cyrus B. Eby for nearly thirty-three years, from 1901 until his death, was a loved and honored physician of Fillmore County. It perhaps is not so well known that for nine years, three as a medical student and six as a physician, he was associated with Olmsted County. In an article, "Notes on the History of Medicine in Fillmore County Prior to 1900" (Guthrey) there appeared a sketch of Dr. John Robert Eby, elder brother of Dr. Cyrus B. Eby, which included detailed information on the Eby family and tribute to Dr. C. B. Eby as a physician of Fillmore County *after* 1900.

The fifth of seven children, Cyrus Bowers Eby was a son of Aaron Eby, M.D., physician and writer, and Matilda Croft Bowers Eby. He was born in Sebringville, Perth County, Ontario, Canada, on December 9, 1872, and received his early education in the public school at Sebringville. Later he attended Stratford Collegiate Institute, Stratford, Ontario, from which he was graduated in 1889. Soon afterward he came with his brother John Robert to Minnesota, where his uncle, Dr. Jacob Eton Bowers (q.v.) a distinguished alienist, had been established since 1868 (the first superintendent and chief physician of the state hospital in Rochester from January, 1879, to October, 1889).

During the summer of 1889 and during vacations in subsequent summers, Cyrus B. Eby was employed as a clerk, as was his brother before him, in the drug room of the state hospital. In the autumn of 1889 the brothers matriculated in the medical department of the University of Minnesota for a course of three years, which they completed in 1893. Cyrus B. Eby, an honor student and a member of medical fraternity Nu Sigma Nu, was then only twenty years old, so that he was obliged to wait until his majority to obtain his Minnesota state license to practice medicine.

Dr. Eby came to Rochester on graduation and, it is said, was employed at the state hospital as an intern until his appointment as an assistant physician could become effective. His years in Rochester were marked by able professional work and study and by the activity in medical societies that continued all his life. He was in due time a member of the official medical societies of Olmsted County and of Fillmore County and of the Olmsted-Houston-Fillmore-Dodge County Medical Society, and of the Southern Minnesota Medical Association, the state medical association and the American Medical Association.

On July 8, 1896, Cyrus B. Eby was married to Laura Blanche Bamber, of Rochester. Mrs. Eby was one of the eight children of Dr. Archibald Bamber, a pioneer dentist of Rochester, and Susan L. House Bamber, who was a native of Dixon, Illinois, a daughter of John W. House and Mary A. House. The parents of Archibald Bamber were John Bamber and Lucy Whitney Bamber, who came to Rochester from Ohio in December, 1854, and pre-empted farm lands bordering the Zumbro River near the city; John Bamber was the son of David Bamber, native of Londonderry, Ireland, who came to Herkimer County, New York, in 1798.

Early in 1898, Dr. Eby took a postgraduate course in the diseases of children, at the New York Polyclinic Medical School and Hospital. In February, 1899, he resigned his position at the state hospital and entered private practice at Hospers, Iowa. Later in 1899 he went into northern Minnesota, where for a time he was mine physician at Mountain Iron. Early in July, 1901, Dr. and Mrs. Eby with their young daughter and their infant son settled in Spring Valley, Fillmore County, Minnesota.

For many years Dr. Eby was a member of the board of health of Spring Valley and a county physician. During World War I he carried the burden of practice while other local physicians were in military service, and was medical examiner for the local draft board. He was a member of fraternal organizations, among them the Masonic Lodge (A. F. and A. M.), and was an active worker in the Baptist Church. A talented and enthusiastic gardener, he beautifully landscaped the grounds of the church as well as the grounds of his home. His chief happiness was in his family and home, his recreation in nature study and fishing.

Dr. Eby's hesitancy to send bills or to ask payment of his fees was common knowledge. A favorite story in his family was of the almost unique occasion, in the lean years of the early nineteen thirties, on which he determined to ask a certain farmer for a payment on bill of long standing. When he called at the home, the farmer was away, and Dr. Eby therefore explained his errand to the man's wife. She said, "Oh, I am sure Tony couldn't pay you anything now, because he had trouble getting money together to go on this fishing trip." Dr. Eby said no more; probably he felt some little sympathy with his fellow enthusiast.

Kindly, even-tempered, and selfless in his devotion to his work, an able and ethical member of his profession, a general practitioner of the highest type, Dr. Eby held the friendship and esteem of his colleagues as a man and their respect as a physician. To his patients he was friend and much sought adviser in their personal affairs as well as doctor. He is remembered perhaps especially for his consideration of the needy sick and for his love of little children and his skill in caring for them.

Dr. Eby died on January 20, 1934. Although not well, he had answered a call some ten miles in the country; the road was blocked with drifts, he was alone in his automobile, and in order to get through had to shovel snow and to apply tire chains and, when one chain was lost, to wind rope around the tire. When he arrived at his destination he tried to conceal his exhaustion. As he sat in a chair drawn up to the patient's bedside, he remarked that he had "a little heart trouble," and fell forward in death. In a memorial tribute published in MINNESOTA MEDICINE it was written of him "Words cannot add to the nobility of Dr. Eby's life. Most doctors would envy the way of his life and its ending."

Dr. Cyrus Bowers Eby was survived by his wife, Blanche Bamber Eby; a daughter, Esther E. Eby, member of the faculty of the University of Houston,

Houston, Texas; a son, Robert A. Eby, of Duluth; two brothers, John Robert Eby, M.D., of Elko, Nevada, and Frederick Eby, Ph.D., LL.D., of Austin, Texas; and two sisters, M. Dorothy and Grace D. Eby, both of Trenton, New Jersey. Mrs. C. B. Eby died on April 20, 1941. Of the relatives named here, there were living in 1946, at the addresses given, Miss Esther E. Eby, Robert A. Eby, Frederick Eby, and Miss Grace D. Eby.

Alexander Elder around 1865 relinquished his medical practice in New York City and came to Rochester, Minnesota, where his brothers James and William had established a mercantile business. A third brother, John, was a farmer near by in Cascade Township. Dr. Elder practiced medicine in Rochester perhaps two or three years before he removed to Eyota to make his home with his daugher, Mrs. C. Smith Andrews. Later he divided his time between Minnesota and New Jersey.

A reference to him as a physician is that of Charles Nicholas Ainslie, in his privately printed memoirs, At the Turn of a Century (1938). Charles Ainslie never forgot a morning on which the temperature was 20 degrees below zero, when he, a small boy, "was bundled up to walk more than two miles on a road drifted during the night, to get word to Dr. Elder . . . to come and relieve father," who had suffered all night. "Father" was the Reverend George Ainslie, as stated earlier, the first Presbyterian minister in Rochester; the Ainslie family then lived in a farm home at the foot of Indian Ridge north of town.

Early in 1875 the *Rochester Post* carried a notice of the sudden death of Dr. Alexander Elder, from heart disease, on February 3, at the home of his daughter at Westfield, New Jersey: "He was a gentleman of superior scholastic acquirements and sterling character."

Ziba H. Evans, a graduate of the Medical Department of the University of Buffalo (New York) in 1872, practiced medicine briefly in Rochester, Minnesota, in the summer of 1879; in August, after six weeks, he left for Elk River, Michigan, to take the position of physician and surgeon for a large rolling mill in that city. Official medical directories show that he was licensed in Michigan in 1902 and that from 1906 or earlier, through 1916, he was a practitioner in Traverse City, Michigan.

L. E. (Leo Ervin Oscar) Evens, a graduate of the St. Louis College of Physicians and Surgeons early in 1897, came that spring from Alexandria, Minnesota, to Rochester. For several weeks in May and June, resident at the Rochester Hotel, he served as locum tenens for Dr. H. H. Witherstine while the doctor was in the East at a meeting of the American Medical Association and on vacation. When Dr. Evens left for Iowa in September, the *Olmsted County Democrat* stated that he had been several months "at St. Mary's" and, as stated, in charge of Dr. Witherstine's office. During his stay in Rochester he became a member of the Southern Minnesota Medical Association, at the sixth annual meeting, at Winona, on August 5, 1897. Dr. Evens was licensed in Iowa in 1897 and in the next twenty years practiced at different towns in the state, Osage, Cedar Rapids and Waterloo. Subsequently he was in Chicago and in Hartford, Connecticut. His death occurred suddenly in California in April, 1934, when he was in his early sixties.

David Sturges Fairchild (1847-1930), a pioneer physician in the village of High Forest, Olmsted County, from 1869 into 1872, lived most of his distinguished professional life in Iowa: in Ames from 1872 to 1893, in Clinton from 1893 to 1930. He was honored in life and has been commemorated since death for his great contributions to the art and science of medicine and surgery and to their literature. Dr. Fairchild's History of Medicine in Iowa (1927) is a monument to him. Certain of his special articles, inimitable reminiscences, give a graphic picture of early conditions of practice in southern Minnesota and particularly in the Olmsted County of the early seventies.

The son of Eli Fairchild and Grace Diamond Sturges Fairchild, David Sturges Fairchild was born on a Vermont farm near the village of Fairfield on September 16, 1847. He came of fine lineage and was reared in a fine tradition. He received his earliest schooling near home and in his fifteenth year began his formal education at Franklin Academy, in a Vermont village near the Canadian border. Two years at Franklin were followed by a year at Barre Academy, a year of teaching district school ("The conditions and compensations of a Vermont district school teacher were less attractive than of a farm laborer."), and a period as apprentice to an established physician during which he read anatomy, physiology and materia medica as set forth by Gray, Dalton and Wood respectively. In the autumn of 1866 he entered the medical school of the University of Michigan, which he found crowded by 525 students, many of them resuming medical study that had been interrupted by military service during the Civil War. He returned to Ann Arbor in September, 1867, for a second term but, finding the school temporarily disrupted by a dispute over homeopathy, he transferred to the Albany (New York) Medical College, from which he was graduated on December 23, 1868.

Following the advice of his friend, Dr. Burney J. Kendall, who had studied with a physician in a neighboring community in Vermont and was now practicing medicine in the village of Marion, Olmsted County, Minnesota, Dr. Fairchild in April, 1869, came to Olmsted County and by May 1 had settled in High Forest. Twenty-three years old, very blond, carefully groomed, his costume made impressive by a plug hat and a Prince Albert coat, he arrived in High Forest on horseback. He was courteous, friendly and tolerant, in a reserved New England way, and was obviously of culture and education superior to that of most of the local settlers. He was needed and welcomed in the community but withal he was eyed with some skepticism and was greeted with greater familiarity than he could at first enjoy; the title "Doc" had no virtue in his ears. Until then the community either had accepted the uncertain services of the local incumbents (one qualified but inactive, one a bluff army surgeon of sketchy training), or sent when in real need for one of the established physicians of Rochester, fifteen miles away. The new "doc" had not an easy role.

Dr. William W. Mayo, of Rochester, proved to be a kind and helpful friend who initiated the young physician into country practice and on occasion so maneuvered as to concentrate attention on the boy's professional ability, in a generous spirit that Dr. Fairchild never forgot. At the older man's suggestion he joined the Olmsted County Medical Society, attending the meetings in Rochester when roads and practice permitted: "The most important events so far as my memory goes were the occasional invitations to dinner at Dr. Mayo's home, where I saw W. J. and C. H. running about in short pants." These brothers in their adult years were among his closest friends to the end of his life. In June, 1871, at Minneapolis, Dr. Fairchild became a member of the Minnesota State Medical Society, and he was present at three other meetings semi-annual and annual, within the next year. From those sessions he recalled with affection many men whose names are known throughout the state, from the Twin Cities and from various southern counties; here are mentioned only men from Olmsted County, Drs. Edwin C. and Elisha W. Cross, Dr. Hector Galloway, and Dr. W. W. Mayo, all of Rochester.

In those years "there was no science of medicine." Dr. Fairchild possessed a few established works, he later said, on the practice of medicine, on materia medica and therapeutics and obstetrics, which he read more or less secretly, "for it was believed by many people that a doctor must know all about medicine from experience and natural gifts in understanding of the mysteries of disease." Because he felt the need of further knowledge he joined medical socities and subscribed to the best medical journals available.

At High Forest on May 1, 1870, David S. Fairchild was married to Wilhelmina C. Tattersall of that village, a daughter of Captain William K. Tattersall, one of Olmsted County's earliest and most notable citizens. William K. Tattersall (1814-1893), a native of England, when an infant came to New York State with his parents; in 1856 he traveled to Minnesota and settled in High Forest and in that year built the Tattersall House, which for decades was to be a famed hostelry (the building was razed in 1946). He was a Civil War veteran, civic officer, postmaster, and member of the Minnesota legislature.

In 1872, after a little more than three years, Dr. Fairchild had become well established in the confidence, liking and respect of the community and of the profession of county and state. He had his own drugstore and he took part in civic affairs; in June, 1872, he served as grand juror from the county to the United States Circuit Court at Saint Paul. But he realized, and his wife concurred, that High Forest, past its zenith and without likelihood of gaining a railroad, held no future for a professional man, and he cast about for a new location. At this time Dr. Albert Richmond, of Ames, Iowa, a college classmate of Dr. Fairchild at Ann Arbor, was returning to his early home in Rochester, Vermont, and he wrote urging Dr. Fairchild to settle in Ames, to succeed him in practice. So it was that on July 10, 1872, Dr. and Mrs. Fairchild with their infant son, David S. Fairchild, Jr., started with a horse and buggy for Ames. The story of that eventful trip is well told in Dr. Fairchild's memoirs. The story of his subsequent life and work is well known and is recorded in the annals of medicine in Iowa.

When Dr. David S. Fairchild died in Clinton, Iowa, on March 22, 1930, from thrombosis, he was survived by his wife, Wilhelmina Tattersall Fairchild, by their son Dr. David S. Fairchild, Jr., of New York City, and two daughters, Margaret Fairchild Reynolds, wife of Dr. H. R. Reynolds, of Battle Creek, Michigan, and Gertrude Fairchild Brown, wife of A. W. Brown, of Davenport, Iowa, and Tucson, Arizona. Mrs. Fairchild died in Clinton on April 23, 1943, at the age of ninety-two years. Earlier, on November 18, 1940, Dr. D. S. Fairchild, Jr., died in an automobile accident, at the age of sixty-nine years. A colonel in the United States Army Medical Reserve Corps, he had been recalled to service and was on his way to Washington, D. C., when the accident happened; his service during World War I, as chief surgeon to the famed Rainboy Division, is a matter of record. In 1945 David S. Fairchild, III, son of Colonel Fairchild, was with the United States Army in Germany; Mrs. Reynolds and Mrs. Brown were in their former places of residence. A grandson of Mr. and Mrs. Brown is David Fairchild IV Salter.

(To be continued in the September issue.)

President's Letter

POSTPONED HEALTH PROBLEMS

Postponement of health needs is one of the most dangerous and deeply rooted problems confronting the medical profession today.

Patients defer a visit to the family doctor because they're "sure to feel better tomorrow"; and the price they pay, in suffering and extended convalescences, doesn't seem to change this practice of procrastination.

The same habit, with one variation, applies to the children of these "wait-and-see" patients. The exception is that medical supervision of infants has become an accustomed rule—Minnesota's outstanding record of maternal and infant health bears out this truth here—but after the child is old enough to walk, he apparently is considered safely on his way to maturity. The regular health check-up is forgotten; the youngster is given medical attention only when he is clearly and unmistakably ill.

The lapse in medical supervision between the ages of two and five or two and six is still a critical problem; but its consequences have been mitigated by the annual summer round-up. Through this school health program, the diagnostic tools of medical science operate with speed and assurance to help junior citizens reach and enjoy healthy maturity.

Useful by-products of the round-up include the children's recognition of the necessity for good nutrition, adequate rest and clothing, cleanliness and regular check-ups. They gain valuable knowledge of body mechanism and, often most important of all, they learn to accept the physician as a friend, someone whose help is to be welcomed, not feared.

If the school health program is beginning now in your community, it deserves your co-operation. If your locality hasn't developed a round-up plan for health examinations, why not help to organize one?

J. J. Elias.

President, Minnesota State Medical Association

◆ Editorial ◆

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

REGULATION OF DRUGS AND MATERIALS USED IN THE HOME

WE NOTE that our Senator Humphrey has submitted a bill to the Senate (S 3852) permitting oral authorization for the dispensing and refilling of certain prescriptions, providing a written prescription is supplied later. At present, it is illegal for a druggist to fill a first prescription for a narcotic or barbiturate without having the written prescription in his hands. What is also irritating to the physician and, doubtless, more so to the druggist is that while a prescription containing a barbiturate can be refilled by the druggist upon verbal authority from the physician over the telephone, this is not allowed for refills containing a narcotic. A written prescription must be in the hands of the druggist before he can dispense an original or a refill of a narcotic prescription.

As a result of such a stringent regulation, which is so often impractical to observe, the law is broken right and left. Imagine a dentist called by telephone after office hours for relief of a toothache. In order to provide a remedy containing a narcotic, some arrangement has to be made to transport a written prescription from the dentist to the druggist before the druggist is allowed legally to dispense the drug. A physician is called upon during the day or, as so often happens, in the evening to supply a cough syrup which, in his opinion, should contain more than the maximum grain to the ounce allowed without the narcotic prescription. The mechanism of supplying the druggist with a written prescription before the patient obtains the remedy, as provided by regulation, is most cumbersome and irritating to everyone concerned.

Admittedly stringent regulations of habit-forming drugs, such as the opiates and barbiturates, are necessary. Their use, particularly the use of the barbiturates with suicidal intent, has become so common as to constitute a problem. Perhaps one-seventh to one-fifth of suicides are due to barbiturates. These are not the only drugs, however, which may be lethal when taken in overdosage. A drug dispensed by written prescription is just as lethal as one authorized by telephone pending the mailing of the prescription. Because a druggist has been occasionally duped by a drug addict impersonating a physician over the telephone scarcely justifies this stringent regulation, the full observance of which seems unreasonable to expect. Although we agree, one hundred per cent, that regulation of drug traffic is necessary, laws however strict cannot wholly prevent the intentional overdosage of certain drugs with suicidal intent.

When it comes to accidental poisoning, particularly of young children who help themselves to pills and solutions found within and without the medicine cabinet, the list is long. It is surprising to note that not so many years ago strychnine poisoning constituted about half of the fatal poisonings in children under five.* The Aloin Strychnine and Belladonna pill and the Hinkle pill were largely to blame. The 1946 National Formulary has eliminated the strychnine from the Hinkle pill but has doubled the strychnine (from 1/120 to 1/60 grain) in the A.S. and B. pill. The ingestion of ten to fifteen of these by a small child might well prove fatal.

The physicians, called upon to advise the parents when a child has ingested one of the many household materials which may or may not be poisonous, is frequently in a quandry whether there is need for treatment or not. As suggested by Gold,* something should be done to insure that the label on the container contains the name and amount of chemical present in the preparation. A lot of unnecessary treatment might then be obviated. Here is an opportunity for some constructive legislation.

We mention the obvious conclusion that unused and poisonous drugs be discarded or at least be kept in a place inaccessible to children.

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*Conference on Therapy, Household poisoning. Am. J. Med., 6:237, 1949.

ADVERTISING PROGRAM

At a combined meeting of the Board of Trustees and the Campaign Co-ordinating Committee of the AMA held on May 28, 1950, it was decided to undertake a nationwide advertising program in October. Emphasis is to be made on the importance of voluntary health insurance—not of any special type but the kind that fits the individual case—in contradistinction to compulsory state-provided and tax-supported medical care. It was at first thought impractical to use the usual media of advertising, such as newspapers, magazines and radio but this is exactly what will be used this fall in a concentrated educational drive. The total advertising budget of $1,110,000 will be allocated, $560,000 to some 11,000 daily and weekly newspapers throughout the country, $300,000 to radio, and $250,000 to about thirty national magazines. The medical profession may have been slow in taking up the challenge to their very existence as a private enterprise but if the wave of socialism which has spread over the country is stemmed and private industry saved, the medical profession will deserve much credit.

The medical profession would welcome a showdown vote in Congress on the proposal to nationalize the profession in order to clear the atmosphere and settle the question whether the people of this country wish this change. Until such time as the issue is settled, our efforts which so far have been successful beyond expectation will have to be continued to assure the existence of medical care as a private enterprise.

The AMA requires the support of every physician in the country. Have you done your part financially by sending your check, made payable to the AMA for $25.00, to the Minnesota State Medical Association office at 496 Lowry Medical Arts Building, Saint Paul? Last year the percentage of our state members who paid the voluntary assessment of $25.00 for this same purpose was nothing to be proud of.

This advertising program is entirely educational in nature, though it will be called by other names by our opponents. Financial support to the extent of $25.00 is the least each member can do in defense of his practice. Just as important is the personal education he carries out on his patients and friends in his everyday contacts.

Since the above was written, our attention has been called to the address* of our national president, Dr. Ernest E. Irons, before the AMA House of Delegates at San Francisco on June 26, 1950. The address deals with the modern trend towards a nationalistic government and should be read by every member.

SHOE-FITTNG FLUOROSCOPES

We ARE ADDING our voice to those raised elsewhere† in issuing a warning of the possible danger from the indiscriminate use of the fluoroscope for fitting shoes. All such apparatuses are not of equal strength, are not built with the x-ray tube at the same distance from the foot, and are not regulated for the same period of exposure.

It is perhaps not generally appreciated that repeated exposures from such innocent machines can affect the growth of bones in the feet of children, especially by their action on the epiphyses of the bones of the feet, to stunt their growth without showing evidence of affecting the skin—in other words, from less than an erythema dose. Repeated exposures may cause skin lesions at a later date without evidence of deleterious effect while the exposures are being received.

Most machines provide sufficient protection to the shoe clerk. The chief danger lies in the repeated exposure of the foot and particularly that of a child. They are not playthings for children or adults and should be kept under lock and key and be used only under the direction of an attendant who knows the possible dangers from overexposure to the x-rays.

Although no reports have appeared of untoward or severe injury having been caused by these shoe-fitting x-ray machines during the past two decades during which they have been used, warnings were issued some ten years ago by the New York Roentgen Society, in the *Monthly News Letter* of the American College of Radiology in February, 1948, and again in March, 1950, also in an editorial sponsored by the College in the *Journal of the American Medical Association* of April 9, 1949.

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*J.A.M.A. 143:977-979 (July 15) 1950.

†Hemplemann, L. H.: Potential dangers in the uncontrolled use of shoe-fitting fluoroscopes. New England J. Med., 241:335, (Sept. 1) 1949.

Williams, Charles R.: Radiation exposures from the use of shoe-fitting fluoroscopes. New England J. Med., 241:333, (Sept. 1) 1949.

As a result, regulations have been made regarding the use of these machines in certain cities. The New York City Health Department has specified that the maximum permissible dose per exposure shall not exceed two roentgens as far as the machine is concerned, and that not more than three exposures in one day or twelve in one year shall be allowed. An easily readable sign to this effect is required to be posted on the machine. The New York City Sanitary Code makes further specifications for the protection of the operators and attendants.

AMA MEETING

SOME 10,119 physicians registered at the annual meeting of the American Medical Association in San Francisco, June 26-30, 1950. Of this number, 5,517 were from California, 455 from Illinois, 311 from New York, and 154 from Minnesota. The attendance compares favorably with the second largest registration of 13,221 at Atlantic City last year and the largest registration in history, that at Atlantic City in 1947, the Centennial meeting of the Association, when 15,667 physicians registered.

Continuation of the National Education Campaign during 1951 with the firm of Whittaker and Baxter as directors was approved. In 1951, a subscription to *The AMA Journal* will be included in the dues of $25.00.

The following officers were elected by the House of Delegates:

John W. Cline, San Francisco, President-Elect

R. B. Robins, Camden, Arkansas, Vice President

George F. Lull, Chicago, Secretary (re-elected)

J. J. Moore, Chicago, Treasurer (re-elected)

F. F. Borzell, Philadelphia, Speaker of the House of Delegates (re-elected)

James R. Reuling, Bayside, New York, Vice Speaker (re-elected)

Leonard Larson, Bismarck, N. D., Trustee

Thomas P. Murdock, Meriden, Conn., Trustee.

Doctors like fees no doubt—ought to like them; yet if they are brave and well-educated, the entire object of their lives is not fees. They, on the whole, desire to cure the sick; and if they are good doctors, and the choice were fairly put to them, would rather cure their patient and lose their fee than kill him and get it.—JOHN RUSKIN.

SUGGESTIONS FOR THE DIAGNOSTIC STUDY OF A PATIENT WITH AN ABNORMAL X-RAY SHADOW OF THE CHEST

The mass chest x-ray surveys have increased the number of patients consulting physicians about chest diseases. In these survey films, as well as in other chest films taken routinely, abnormal shadows may be found. The roentgenologist reports these shadows as he sees them and he then interprets the findings in the light of his past experience. It must be emphasized that the roentgenologist is not able to give either a bacteriological or histological diagnosis from the x-ray film. He can, however, give very accurate diagnosis in many of the films that he reads. The absolute diagnosis, however, still remains the responsibility of the clinician. The following suggestions are made to aid the physician in making a diagnosis of chest lesions. It is apparent that these suggestions are minimal in character and that the physician may and can add to them.

1. What constitutes the clinical history in a case of chest disease? The history should be detailed and in the patient's own words. In addition leading questions should bring out in particular—

(a) What diseases are endemic in the patient's locality?

(b) Has the patient been exposed to tuberculosis and if so, when, where, and to what extent? Has there been a family history of tuberculosis and was the patient exposed to the members of his family who suffered from the disease?

(c) The occupational history should emphasize the possible exposure to irritating dusts, vapors, et cetera.

(d) Was it possible for the patient to have been exposed to fungi or has the patient resided in or traveled through known endemic areas?

(e) What is the racial extraction of the patient? It is well known that certain races are more prone to tuberculosis than are other races.

(f) Has the patient ever had a chest x-ray before? If so, for what purpose, and can it be obtained for comparison purposes?

(g) Has the patient ever had a tuberculin test? What was the result?

(h) Has the patient ever had any previous chest diseases?

2. What constitutes the physical examination?

The physical examination should be made with the patient completely disrobed and in a well-illuminated room. It should include the examination of all organs and systems in the body and every orifice should be examined.

3. What is the minimum amount of laboratory work indicated?

It is suggested that the minimum amount of laboratory work should be—

(a) Hemoglobin

(b) White blood count

(c) Sedimentation rate

Report of the Committee on Tuberculosis, Minnesota State Medical Association.

(d) Urinalysis
(e) Wassermann test
(f) Agglutination test for undulant fever

Other laboratory procedures should be ordered when indicated.

4. What is the role of the tuberculin test (Mantoux test)?

This is the most valuable test known to determine existence of an infection by tuberculosis. The test for accuracy is dependent upon—

(a) Potent material
(b) Proper intradermal injection
(c) Proper interpretation of the test at the end of 48 to 72 hours.

The test should be read then by the degree of induration and not by the zone of erythema. For practical purposes it is not necessary to give the degree of reaction but rather to report the test as either positive or negative. Any induration exceeding 5x5 mm. is considered a positive reaction. *The tuberculin material in Minnesota is supplied free of charge by the Minnesota State Board of Health. The committee would like to emphasize that every patient consulting the physician for any purpose whatsoever, should have a routine Mantoux test.* Should the test prove positive, the patient should have a chest x-ray and this should be repeated once yearly if no active disease is found on the original film. Those people who have a negative Mantoux reaction should be retested not less than once yearly. The committee also suggests that the patch test not be used. When indicated, other skin tests may be applied. A positive Mantoux test does not mean clinical tuberculosis.

5. What is the role of the roentgenologist?

The roentgenologist has an important role in the screening of chest x-ray films. In making his report he should not be too positive in his diagnosis but rather describe the lesions seen and then suggest the possible diagnosis. When indicated, the roentgenologist should feel at liberty to suggest other specialized x-ray procedures to help in making the diagnosis. Wherever possible, both he and the clinician should determine whether other chest x-ray films have previously been made on the patient in question, and if so, an effort should be made to obtain the films for comparison. It must be emphasized that serial x-ray films of the chest are often more valuable than a single film. Follow-up x-ray films should be made on every patient who has a chest lesion and/or who has a positive Mantoux test. The maximum period between films should not exceed one year. X-ray films should always be required at the time of discharge of patients from the hospital after apparent recovery from acute chest diseases. *Most important, make use of the roentgenologist as your consultant.*

6. What is the minimal laboratory work indicated to determine the presence of the tubercle bacillus?

It is necessary to know that the material being submitted for examination actually has come from the lungs and that it is not simply saliva or nasal discharge. The committee suggests that three successive 24 hour sputum specimens be submitted for smears, culture and/or guinea pig inoculation. If the attending physician suspects that other organisms than the tubercle bacillus are causing the chest lesion, he should so inform the laboratory personnel. When the patient is not raising sputum, gastric washes should be done and the material submitted for both guinea pig and/or cultural investigation. The gastric washes may be obtained—

(a) As a result of an over-night stay in the local hospital
(b) In the local tuberculosis sanatorium after the proper arrangements have been made with the medical director
(c) In the physician's office
(d) In the patient's home with the help and assistance of the local public health nurse.

It is essential that exact technique be used in obtaining of the material. The information concerning the technique may be obtained either from the local sanatorium or from the State Health laboratories. Exudates, such as pleural fluid, et cetera should also be submitted for laboratory investigation. Do not overlook the possibility of finding malignant cells in sputum, exudates, et cetera.

7. What should be the follow-up care of the tuberculosis patient recently discharged from the sanatorium?

The committee suggests that the private physician consult the sanatorium director for detailed information concerning the patient's sanatorium course and what suggestions the medical director may give for the follow-up care of the patient. Here again, it is important to remember that the sanatorium medical director is your consultant; make use of him in the management of the sanatorium's discharged patient.

8. How shall the patients with indetermined chest lesions be classified?

If the patient has been thoroughly studied, the committee feels that the attending physician's classification should be accepted for the record. The diagnosis ot tuberculosis remains a presumptive or suspected diagnosis until the tubercle bacillus has been demonstrated. If a positive diagnosis has been made, have you reported the case to the Health Department?

9. What other procedures may be used to diagnose chest lesions?

There are a great many highly specialized investigations that assist in making the diagnosis of a chest lesion. Some of these, such as bronchoscopy, bronchograms, kymography, and the like, can only be done in centers especially equipped for such studies. When these specialized studies are indicated, the attending physician should refer his patient to a physician or to an institution equipped to carry out such investigations.

10. What should be the follow-up procedure in the patient in whom chest lesions have been found?

The committee recommends that the private physician make every effort to see that such patients be reexamined periodically. It is the duty of the private physician to use every facility at his command to have his patients return for chest and x-ray examinations. Whenever necessary, he should call upon the public health nurse in his locality or the public health officer to aid him in the periodic follow-up of the patient with a chest disease.

BCG VACCINATION

Considerable attention has recently been given to BCG vaccination in the public press. From this publicity the impression might be gained that this procedure alone holds promise of real control of tuberculosis. Since such an impression might postpone indefinitely the establishment and extension of accepted control measures, this statement of the status of vaccination in tuberculosis control programs is issued.

1. Control measures in tuberculosis should be directed at eradication of the disease as a major cause of death or disability.

2. The marked improvement in tuberculosis mortality figures, particularly for the ages under thirty, demonstrates the effectiveness of the present control program.

3. The low rate in children and the continuing high rates in adults over fifty emphasize the location of the problem at the older age levels rather than in children. Under these circumstances, the efficiency of a method of tuberculosis control would be measured by its effect on the mortality from tuberculosis in the older age group, rather than in children.

4. The addition of a vaccine to the present control program requires both careful and adequate consideration. Of the vaccines proposed, BCG has been used most widely and is the one most often discussed.

5. This has been used for more than twenty-five years and recently many millions of people have been vaccinated. However, it must be stated that there is no evidence that meets strict scientific requirements demonstrating that BCG effects the control of tuberculosis, despite the very suggestive results of a few studies.

6. Because of the above fact and because there is no general agreement among investigators anywhere in the world on such fundamental matters as the preparation of vaccine, the method of vaccination, what constitutes a successful vaccination, how resulting immunity may be measured, how long such immunity lasts, et cetera, the procedure would seem to be still in the investigational period.

7. It is therefore recommended that investigation of vaccination in tuberculosis be continued and increased under standard and stringently controlled conditions. This investigation should be designed to determine if the vaccine is indeed effective and what the limitations of its use may be. It would seem desirable that in each country, one agency, preferably the official health agency, should have control of the investigation.

8. Until this has been determined and until these controlled studies are completed, the use of BCG vaccine should be limited to such investigative studies.

9. At the present time the methods which have been proved effective in tuberculosis control should be increasingly applied to all segments of the population, regardless of decreasing mortality figures, so long as tuberculosis remains an important cause of death. These measures include mass x-ray case finding, early diagnosis, rapid institution of treatment, isolation of open cases, and the restoration of the patient to normal life.

Report of the Council on the Management and Treatment of Diseases of the Chest, American College of Chest Physicians.

WHO IS HARDEST HIT?

Doctors should be aware of the fact that the families under their care who earn under $5,000 a year pay most of the tax bills. Family physicians in many instances could bring this realization to those in that bracket whom they attend. Curiously, many people do not comprehend this simple truth. Why do these families pay most of the tax bills? Because there are so many of them. The Federal Reserve reports that 8,250,000 families receive more than $5,000 a year, that 29,250,000 families get less.

But these 29,250,000 families pay most of the taxes because they consume the most products. For products pay taxes! There is a hidden tax on every product that moves from mine or farm or forest or fishery, or from factory to wholesaler, from wholesaler to retailer, from retailer to consumer—and transportation taxes every time the product moves. By sheer force of numbers, the smaller income group pays most of these taxes.

The 38 per cent of net income that a corporation is taxed is paid by consumers who buy the corporation's products. Families with incomes of less than $5,000 buy 72 per cent of the nation's automobiles, wear most of the clothes sold, use most of the electricity, and eat most of the food. Every time they buy a new automobile, the $400 which taxes represent give them less automobile and more tax burden than they think. They smoke 70 per cent of all tobacco; about 50 per cent of what they pay for tobacco and gasoline is in taxes.

Families of under $5,000 income bought 64 per cent of the food in Denver, 69 per cent in Detroit, and 71 per cent in Houston, according to a Labor Department study of these typical cities. Of course, they must have paid about that proportion of corporation taxes levied on food companies in those cities. What is true of these products holds true for almost all family consumption. And since taxes can be paid only out of products, it is the total family spending of these 29,250,000 families that pays the bulk of our taxes.

* * *

Many young physicians and their families are in this income bracket as they start out. Do they realize what deficit spending is doing to them? Would it not be well to think about that? Especially in view of coming Congressional and Presidential elections.

* * *

No matter what party achieves power, the principle holds good that deficit spending and high taxation bear most heavily on those who can least afford these luxuries, until finally ruin brings despair to all alike. Editorial Comment—New York State Journal of Medicine, August 15, 1950.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

GRADUATES WARNED OF DEFICIT SPENDING

The *Wall Street Journal* recently gave graduates a commencement address on the evils of deficit spending—a subject all Americans could study with grave concern. The *Journal* says:

> "No one could blame these young people, then, if they were to regard Treasury deficits as a normal way of life. Some folks much older seem to regard red ink in the budget as nothing to worry about. A few even contend that through deficits lies the road to prosperity. And a handful have argued that a huge Government debt is no cause for concern—after all, 'we owe it to ourselves.'"

Showing the fallacy of these ideas, the *Journal* quoted the campaign speech of Franklin D. Roosevelt:

> "If a nation is living within its income, its credit is good. If in some crisis it lives beyond its income for a year or two, it can usually borrow temporarily on reasonable terms. But if, like the spendthrift, it throws discretion to the winds, is willing to make no sacrifice at all in spending, extends its taxing up to the limit of the people's power to pay, and continues to pile up deficits, it is on the road to bankruptcy."

The editorial then described what the giver of such good advice did about it, revealing that in every year since Roosevelt's election, there was a mounting government deficit. The debt has not stopped climbing during this present administration—in fact, it is bigger than ever. The *Journal* has this to say:

> "There is in the Administration at Washington no real will to save—to trim unnecessary expenditures, to forego housing subsidies and farmer subsidies and bigger welfare programs. Yet the fiscal figures show the Government can't afford them.
>
> "There is no will to fiscal sanity at Washington because the Administration still follows the political advice of the late Harry Hopkins to tax and spend and elect. Whenever there is criticism of deficits then there is an excuse: why, we're fighting a cold war and we can't balance the budget because we must build our defenses and help Europe in the battle against Communism.
>
> "It's a good alibi but it's not the reason. A recent Senate committee study showed that a large part of the rise in expenditures the past couple of years has been due to strictly domestic projects. Farm price supporting and home mortgage financing are examples."

Another President Quoted

Giving sound advice, the *Journal* remarks that those college graduates will do well to recall the history they've been studying. They'll remember that no nation has ever succeeded in spending its way into permanent prosperity. "The deficit roads of past centuries are studded with collapsing nations." Concluding, the *Journal* reminds the graduates that it might be a good idea to throw this quotation of George Washington's at any candidate who thinks deficits are good:

> "As a very important source of strength and security, cherish public credit. One method of preserving it is to use it as sparingly as possible, avoiding occasions of expense by cultivating peace, but remembering, also, that timely disbursements, to prepare for danger, frequently prevent much greater disbursements to repel it; avoiding likewise the accumulation of debt, not only by shunning occasions of expense, but by vigorous exertions, in time of peace, to discharge the debts which unavoidable wars may have occasioned, not ungenerously throwing upon posterity the burden which we ourselves ought to bear."

Graduates might also note the words of Dwight D. Eisenhower:

> "Since government takes about one-fourth of every worker's income, and still can't make ends meet, he should have sense enough to insist that the government do what he himself has to do in the same circumstances —cut its spending by a like amount, at least."

POSTERITY STILL BEARS BURDEN

That same burden which concerned President Washington apparently has not been bothering those who control present-day government spending. Placing the burden squarely on the shoulders of taxpayers, the government still spends lavishly, the federal debt now amounting to about 278 billion dollars.

But, due to hundreds of hidden taxes paid daily, the average taxpayer has a difficult time knowing how much he actually pays the government in taxes. A recent pamphlet from the Minnesota Taxpayers Association has brought to light the enormous amount of hidden taxes paid on ordinary items:

> "But what about the hidden taxes—the taxes that build up all the way along from raw material to the finished goods on the shelves of retail stores?
>
> "There are 206 taxes levied during the manufacture and sale of that new Chevrolet and covered in the price you pay your dealer. Or, if you buy a new suit of clothes, you're paying 116 taxes. A new hat for your wife, 150 taxes. A loaf of bread, 151 taxes. And a dozen eggs, 100 taxes.
>
> "You'll probably be surprised to learn that these hidden taxes are costing you and your family some $700 this year—at least, that's the national average. Nine out of 10 families pay more in hidden taxes than they do in income tax."

Illustrating other hidden taxes, the pamphlet states that the smoker pays 11 cents taxes on every package of cigarets bought. Of this amount, 7 cents is federal, 4 cents is in state taxes. "If you smoke a pack a day, you're paying $40 a year tax. With more than half the selling price going for taxes, cigarets are among the most ruthless tax collectors the government has."

The Taxpayers Association has also discovered that Americans pay more annually to be governed than they pay for food. Combined cost of all government functions last year was 56 billion dollars. The national food bill came to 53 billion dollars—convincing enough figures to cause Americans to take an active interest in the amounts being spent by the people elected to represent them in Washington.

AMA PRESIDENT HITS STATE SOCIALISM ISSUE

Making his initial speech as president of the American Medical Association, Dr. Elmer L. Henderson called American medicine only the first socialization goal of "a comparatively small group of little men—little men whose lust for power is far out of proportion to their intellectual capacity, their spiritual understanding, their economic realism or their political honesty."

Government Medicine—A Step to Socialism

Dr. Henderson cited these little men for attempting to bring all fields of human endeavor under government control:

> "These men of little faith in the American people propose to place all our people—doctors and patients alike—under a shabby, Government-dictated system which they call 'Compulsory Health Insurance.' And this, factually, is Socialized Medicine, regardless of how hard they try to disclaim it.
>
> "But it is not just 'socialized medicine' which they seek; that is only their first goal.
>
> "Their real objective is to gain control over all fields of human endeavor. Their real objective is to strip the American people of self-determination and self-government and make this a Socialist State in the pathetic pattern of the socially and economically-bankrupt Nations of Europe which we, the American people, are seeking to rescue from poverty and oppression."

Dr. Henderson warned doctors throughout the nation that socialism differs from communism only in one particular. He said:

> "This we must all recognize:
>
> "There is only one essential difference between Socialism and Communism. Under State Socialism human liberty and human dignity die a little more slowly, but they die just as surely!"

INDUSTRY LEADERS SANCTION "RIGHTS OF FREE MEN"

Helping to sustain these human liberties and human dignities, some of the nation's leading industrial men, meeting recently in Boston, endorsed the following "rights of free men" so that the individual American "may face the future with confidence":

> "1. The right to personal initiative; to choose freely; to lead but not to dictate; to follow but not to be driven.
>
> "2. The right to opportunity; to have a chance to forge ahead by his own efforts; to succeed or fail; and if he fails to try again.
>
> "3. The right to personal dignity; to be protected from those impositions of others which they would not impose on themselves.
>
> "4. The right to participate in affairs of common concern; to hear and be heard; to stand alone or to be one among equals.
>
> "5. The right to provide for the future; to save or to spend; to advance or hold still; to be judge of his own welfare."

(Continued on Page 853)

THE INTERURBAN ACADEMY OF MEDICINE

INVITES YOU TO ATTEND A

CANCER TEACHING CLINIC

Duluth, Minnesota **October 18, 1950**

Clinic Sponsored by the

Minnesota State Medical Association
Minnesota Division, American Cancer Society
Minnesota Department of Health
Wisconsin State Medical Society
Wisconsin Division, American Cancer Society
Wisconsin State Board of Health

No Registration Fee—Program furnished through funds of the American Cancer Society and its Minnesota and Wisconsin Divisions.

Afternoon Session—Saint Mary's Hospital, Duluth

P.M.
2:00 Motion picture—"Breast Cancer—The Problem of Early Diagnosis."
2:30 "Cytological Diagnosis of Malignancies"
John R. McDonald, M.D., Associate Professor of Pathology, University of Minnesota Graduate School, Minneapolis-Rochester, Minnesota.
3:10 Recess
3:20 "Office Diagnosis of Malignancies"
Carl W. Eberbach, M.D., Associate Clinical Professor of Surgery, Marquette University School of Medicine, Milwaukee.
4:00 "The Problem of Carcinoma of the Lung"
Richard L. Varco, M.D., Associate Professor of Surgery, University of Minnesota Medical School, Minneapolis.
4:40 General symposium and question and answer period.

Evening Session—Gitchie Gammi Club, Duluth

P.M.
5:30 Social hour
6:30 Dinner
"Radical Surgery in Advanced Cancer of the Female Genital Tract"
Alexander Brunschwig, M.D., Professor of Clinical Surgery, Cornell University Medical College, New York.

DETACH AND MAIL IN ENVELOPE

RESERVATION BLANK

Detach and Mail Today
to
Minnesota State Medical
Association
496 Lowry Medical Arts Bldg.
St. Paul 2, Minnesota

Arthur H. Wells, M.D., Chairman, Committee on Cancer
496 Lowry Medical Arts Building
St. Paul 2, Minnesota

Dear Dr. Wells:

Please enter my reservation for the CANCER CLINIC to be held in DULUTH on Wednesday, October 18.

I will attend: The AFTERNOON SESSION only ☐
The DINNER MEETING only ☐
All sessions ☐

(Check Functions You Will Attend, Please)

SIGNED ____________________
(Please print)

ADDRESS ____________________
____

Minnesota Academy of Medicine

Meeting of March 8, 1950

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, March 8, 1950. Dinner was served at 7 o'clock, and the meeting was called to order at 8:10 p.m. by the President, Dr. William A. Hanson.

There were forty members and two visitors present.

Dr. Hanson announced the election of new members for the April meeting. Dr. Lepak announced that recommended changes in the Constitution and By-Laws of the Academy would go out with the program of the April meeting, to be voted on at a later date.

Dr. J. K. Anderson introduced Dr. Vernon Waite, of Honolulu, who gave a short talk. Dr. Burch then presented Dr. Donald Hastings of the University of Minnesota Medical School.

Dr. Ritchie requested that proposals for new members be sent in very soon so that they could be considered by the Executive Committee before the April meeting.

The scientific program followed.

Dr. Harold Diehl, of the University of Minnesota, gave a report on his recent trip to Britain, entitled "Medical Education in Britain," after which he answered several questions by the members present.

The meeting was adjourned.

WALLACE P. RITCHIE, M.D., *Secretary*

Meeting of April 12, 1950

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, April 12, 1950. Dinner was served at 7 o'clock, and the meeting was called to order at 8 p.m. by the President, Dr. William A. Hanson.

There were sixty members and four guests present.

The President announced that Dr. Donald MacKinnon had been elected to active membership in the Academy and the secretary was instructed to notify Dr. MacKinnon of his election.

The President appointed a Memorial Committee to draw up a Memorial to Dr. James K. Anderson, to be presented at the May meeting.

Upon ballot, the following were elected as candidates for membership in the Academy:

Minneapolis	Dr. E. T. Evans
Minneapolis	Dr. Thomas Lowry
St. Paul	Dr. Harold Flanagan
University	Dr. Donald Hastings

The scientific program followed.

CURRENT MORTALITY OF TRANSURETHRAL RESECTIONS

DONALD CREEVY, M.D.

Dr. Creevy, of the University of Minnesota, gave a paper on the above subject. Lantern slides were shown.

Abstract

Free hemoglobin, formed in the bladder when blood and water mix during transurethral resection, may be driven into the open prostatic veins and lead to a hemoglobinuria (lower nephron) nephrosis which may be fatal. This is particularly likely to occur if the kidneys have been damaged previously, or if renal vasospasm is produced during operation by excessive loss of blood, by prolonged hypotension, or by bacteremia, which has been shown to occur in 45 per cent of transurethral resections.

Hemoglobinuric nephrosis during transurethral resection can be prevented by using an isotonic, nonhemolytic irrigating fluid such as 4 per cent glucose, 1.1 per cent glycine, or 3 per cent mannitol.

In transurethral resection in one thousand consecutive cases done with the aid of isotonic solutions, Creevy, Webb and Smith have had a hospital mortality of 0.6 of 1 per cent.

Despite statements in the literature to the effect that, with modern use of antibiotics, transfusions, and anesthesia, the mortality of open enucleation of the prostate is now no greater than that of transurethral resection, the author found, in some 2400 retropubic, perineal, and suprapubic enucleations reported in the literature between 1945 and 1950 the average mortality was 5.3 per cent, or nearly nine times that of the author's series of 1000 cases, while the mortality of 3500 cases reported up to 1938 of open enucleation was 6.6 per cent. In contrast to this, Thompson has reported over 11,000 transurethral resections with a mortality of 1.5 per cent.

It seems reasonable to conclude that a well-done transurethral resection is a good deal safer than a well-done enucleation.

Discussion

DR. FREDERIC E. B. FOLEY (St. Paul): There is one most important thing for me to say about this excellent paper. I have known Dr. Creevy for a long time, he is honest, he tells the truth and if he tells you he has had an operative mortality of 0.61 per cent in 1000 cases of transurethral resection, you can depend on it that is just what he had.

Dr. Creevy's accomplishment and low mortality in these 1000 cases are remarkable.

The whole business of transurethral prostatic resection is remarkable. The enterprise began 20 years ago. At first there was wild enthusiasm. Then there was disillusionment. Now finally, among the enlightened, it is recognized as the operation of choice in a large proportion of cases. What that proportion will be in different hands does not depend on the "cases" so much as it depends upon the "doctor," and his honest appraisal of his own talent and ability as a resectionist.

More should be said—than Dr. Creevy said—about the effects of modern developments on the choice of operation for vesical neck obstruction. Mortality has dictated the choice, while morbidity and other undesirable accompaniments of extensive resections have been overlooked. Sulfa drugs, antibiotics, multiple transfusions and other improvements of modern surgery have made of suprapubic prostatectomy, perineal prostatectomy—and now retropubic prostatectomy—entirely different matters from what they were formerly. Through benefit of these improvements these operations nowadays—if properly applied and well performed—are just as safe as transurethral resection, will give a mortality no greater than Dr. Creevy reports for transurethral resection and will be accompanied by a hospital stay no longer than with transurethral resection. Besides that they are devoid of the morbidity, blood loss and other undesirable effects that go with "transurethral prostatectomy" in cases of very large prostates.

Transurethral resection in the hands of the casual resectionist will not give any such mortality as Dr. Creevy has had. The unfavorable morbidity and other bad effects will be even worse than the mortality. Transurethral resection is a highly specialized procedure and belongs only in the hands of the specialist. I confidently and sincerely believe that in other hands all patients with vesical neck obstruction will be better off with enucleation than with transurethral resection, even in the cases of small prostate not requiring large tissue removals.

If Dr. Creevy feels that his patients and he are better off taking out 80 to 100 grams by transurethral resection than they would be with enculeation it must be a good conclusion for him and has my approval.

A lot of people don't have that same conclusion about themselves. I for one do not. I can make a decent transurethral resection with removal of up to 50 grams of tissue and feel I have taken advantage of all the merit of the operation. When I go beyond that extent of tissue removal, all merit of the operation rapidly diminishes and with the very large prostates is completely lost.

The choice of operation is an individual matter for the surgeon and is conditioned by his skill and ability in the use of the different operations and the results he has had with them.

There is indeed such a thing as the status of a surgeon in the use of any operation. There is no such thing as the "present status" of any operation in the hands of thousands of different surgeons.

For me it works out this way: if it is a big gland—too big for a good resection in my hands—and he is a husky, good risk patient, I make a suprapubic prostatectomy. That operation is foolproof, always gives a good result and has no morbidity. If the big prostate is in a dilapidated old crock not fit for any operation I make a perineal prostatectomy. There may be some incontinence with perineal prostatectomy, in my hands, and other difficulties which affect more my vanity as an operator than the results obtained. But I know it is almost impossible to kill a patient by the operation. In cases of very large prostates in old poor risk patients I am glad to accept these disadvantages of the perineal operation rather than the greater morbidity of an extensive transurethral resection or the greater mortality of suprapubic prostatectomy.

With suprapubic prostatectomy as we do it now, the patient is out of bed, voiding normally and with a completely healed wound on the fourth to eighth day and usually is ready to leave the hospital by the tenth day.

At the meeting of the Southern Minnesota Medical Association recently we presented the results in the last previous 100 consecutive operations for vesical neck obstruction. There was one death. The difference between that and Dr. Creevy's mortality is .39 per cent, which is insignificant.

All in all, I think the functional result and morbidity is better with suprapubic prostatectomy than it is with transurethral resection.

Dr Philip F. Donohue (St. Paul): I wish to congratulate Dr. Creevy on his fine report. The remarkably low mortality in his large series is a tribute to the care in the selection and preparation of patients for operation and to the skill of the resectionists. Certainly such a record could scarcely be equaled by the occasional and unskilled operator. This highly specialized procedure carries with it the possibility of technical mishaps which will probably occur more frequently in inexperienced hands. But, even under the best of care and performance, some deaths will occur. The great difficulty is in the proper appraisal of operability. This is particularly true of cases in the cardiovascular group where it may be impossible to foresee the sudden collapse that occasionally occurs in the immediate postoperative period. But the risk must be taken when there is a real need for surgical relief.

Dr. Creevy (in closing): I want to thank the discussants for their kind remarks. Obviously, one could go on at great length about the details of prostatic surgery and about the advantages and disadvantages of the various operations when they are compared to one another. All I can say about transurethral resection is that one has to have an earnest desire to do a good job and to keep eternally at it just as the good golfer does. When the transurethral operation is well done, it is perfectly safe to say that it is safer, from the patient's point of view, than any of the open operations.

TREATMENT OF FRACTURES WITH THE INTRAMEDULLARY NAIL

WALLACE COLE, M.D.

Dr. Cole, of St. Paul, gave a paper on the above subject.

Discussion

Dr. Vernon L. Hart (Minneapolis): Dr. Cole has considered almost every phase of this fascinating subject of the intramedullary nail. I first became acquainted with this method of internal fixation when I was in the Army at Fitzsimons General Hospital in Denver, during 1944. I saw my first cases of the Kuntchner intramedullary nail in German prisoners of war who were brought to this country. They clean wounds, no serious complications, and free joint motions. We were impressed at that time because there at Fitzsimons General Hospital I was in charge of 187 patients who

(Continued on Page 853)

MINNESOTA STATE MEDICAL ASSOCIATION
House of Delegates—Summary of Proceedings

Duluth Session—June 11-12, 1950

First Meeting, Sunday, June 11, 1950

The Ballroom, Hotel Duluth
Duluth, Minnesota

The Ninety-seventh Annual Session of the House of Delegates of the Minnesota State Medical Association was held in the Ballroom, Hotel Duluth, Duluth, Minnesota, beginning at 2 p.m., Dr. C. G. Sheppard, Hutchinson, Speaker, presiding.

Dr. Sheppard called the meeting to order. After approval of the minutes of the 1949 session, Dr. Sheppard introduced Dr. W. A. Wright, president of the North Dakota State Medical Association, who brought greetings from his state.

Dr. Sheppard then called for the report of Dr. O. J. Campbell, chairman of the Council.

Report of the Council

Dr. Campbell: The first meeting of the Council of the Minnesota State Medical Association was held on June 10, 1950, at 2 p.m. in the English Room of the Hotel Duluth, Duluth, Minnesota, for the transaction of routine business. The minutes of the previous meeting held on March 5, 1950 were approved . . . Your chairman will give a fairly detailed report of the Finance Committee later in the absence of Dr. Kennedy.

. . . the Council approved a resolution authorizing Dr. R. L. J. Kennedy, chairman, and the Finance Committee to dispose of the Nicollet Avenue Properties Corporation Bonds, if, after due consideration and proper advice, it was found to be advisable.

. . . the following applications for Temporary Affiliate Membership were approved: Arne D. Rydland, Crookston and William G. Atmore, Duluth.

. . . the following applications for Affiliate Membership were approved: Brand A. Leopard, Albert Lea; Ruth G. Nystrom, Malibu Beach, California, formerly of Minneapolis; Walter M. Boothby, Rochester; Arthur H. Sanford, Rochester; Frederick L. Smith, Rochester; John L. Crenshaw, Rochester; Della G. Drips, Rochester; Irving George Wiltrout, Oslo; John S. Grogan, Wadena; and Rufus O. Johnston, Hibbing.

Applications for Life Memberships were approved: Frank W. Calhoun, Albert Lea; J. Albert Schultz, Albert Lea; Arthur E. Benjamin, Minneapolis; Herbert B. Aitkens, Le Center; Herbert Z. Giffen, Rochester; Claude L. Haney, Duluth; Robert P. Pearsall, Virginia; and Moses L. Strathern, Gilbert.

Honorary Membership was granted to Myron M. Weaver, Vancouver, B. C., who is now Dean of the Medical School at the University of Vancouver, B. C.

The Council recommended that H. W. Leibold, Public Relations Director of the Minnesota Association of Chiropodists, be advised that, in any program involving general physical examinations of Ramsey County school children in which it is considered advisable to include the feet, the Minnesota State Medical Association would welcome the co-operation of the Association of Chiropodists, provided that such a program were under the supervision or direction of the orthopedic surgeons and that the entire survey had the approval of the Ramsey County Medical Society.

The Council voted to accept the reports of the Insurance Liaison Committee and the Committee on Medical Service.

The Council voted to recommend to the House of Delegates that Chapter One, Section Three of the By-Laws be revised to include the following stipulation in the second paragraph:

> "An active member who is delinquent in the payment of such dues for one year shall forfeit his active membership in the Minnesota State Medical Association if he fails to pay the delinquent dues within thirty days after notice of his delinquency has been mailed (by registered mail, return receipt requested) by the secretary of his component medical society."

The Council voted to request that the House of Delegates appoint a committee to study the advisability of establishing a special Minnesota State Medical Association membership classification for interns, to be known as an Intern or Junior Membership.

The Council voted to recommend the establishment of a permanent committee on Hospitals and Professional relations and a committee on Chronic Illness and Geriatrics.

The Council voted to contribute $100 to the National Society for Medical Research.

The Council recommended that members of the press be admitted to general sessions of the House of Delegates, reserving the right to call an Excutive Session.

The Council voted to recommend to the House of Delegates that it take cognizance of the honor bestowed on the medical profession by the selection of Dr. C. G. Sheppard, Hutchinson as the physician chosen by the *Ladies' Home Journal* for its "How America Lives" series. Also, it should be noted that Dr. Sheppard required some persuasion before he agreed to so represent the profession, and the Council wishes to express its appreciation to him and to his family for this co-operation.

Two resolutions were approved by the Council for recommendation to the House of Delegates:

1. A resolution reaffirming the association's well-considered and unhesitating opposition to socialistic infiltrations in any field of American thought and endeavor.

2. A resolution sanctioning and supporting the elimination of waste, duplication and inefficiency in the federal medical services of our country.

The Council voted to recommend to the House of Delegates that a resolution be drawn, instructing Minnesota delegates to the American Medical Association convention to support the Ohio State Medical Association's resolution for the establishment of a single membership classification in the American Medical Association.

Dr. Campbell then read the report of the Finance Committee which was approved by the Council. The report called attention to the fact that during 1949, there was an increase in net worth of the association of $4,126.45.

The House of Delegates approved the report of the Council, including the Financial Committee report, and Speaker Sheppard called for the report of the Reference

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In accordance with action by the Council of the Minnesota State Medical Association in 1944, publication of the proceedings of the House of Delegates is limited to summary.

Committees. Dr. Sheppard called first upon Dr. L. E. Steiner, Albert Lea, Chairman of the Reference Committee on Medical Education Reports.

Medical Education Reports

Dr. Steiner: The Reference Committee for Medical Education Reports met in the Norse Room on June 11, 1950. The following Medical Education reports were considered:

Committee on Cancer—A. H. Wells, M.D., Duluth, Chairman.
Committee on Conservation of Hearing—L. R. Boies, M.D., Minneapolis, Chairman.
Committee on First Aid and Red Cross—John S. Lundy, M.D., Rochester, Chairman.
Heart Committee—F. J. Hirschboeck, M.D., Duluth, Chairman.
Committee on Hospitals and Medical Education—H. S. Diehl, M.D., Minneapolis, Chairman.
Committee on Public Health Nursing—Mario Fischer, M.D., Duluth, Chairman.
Committee on Syphilis and Social Diseases—Paul A. O'Leary, M.D., Rochester, Chairman.
Committee on Tuberculosis—J. A. Myers, M.D., Minneapolis, Chairman.
Committee on Vaccination and Immunization—Robert N. Barr, M.D., St. Paul, Chairman.

The Committee accepted these reports, together with the committee recommendations and comments: changing the term "free blood," as used in the report of the Committee on First Aid and Red Cross, to something more suitable; further inquiry into the adequacy of the reasons given by the Committee on Hospitals and Medical Education for the lengthening of the medical school year to ten months; approval of the statement that there should be some definite proposals given to doctors on immunization procedures to be followed to serve as a guide for instructors, nurses, etc.; discussion of the problem of caring for old syphilitic cases with the usual therapy of penicillin, and it was recommended that the House of Delegates adopt a proposal to have all practitioners check their positive blood patients with further examination by spinal fluid test to bring about a more efficient and complete record of these syphilitic patients.

The House of Delegates accepted the Report of the Reference Committee on Medical Education Reports as a whole with the Committee's recommendations.

Dr. Sheppard then called for the report of the Reference Committee on Miscellaneous Scientific Reports, Dr. R. F. Hedin, Red Wing, Chairman.

Miscellaneous Scientific Reports

Dr. Hedin: The Reference Committee for Miscellaneous Scientific Reports met in the Ballroom on June 11, 1950 and considered the following reports:

Committee on Anesthesiology—R. C. Adams, M.D., Rochester, Chairman.
Committee on Child Health—G. B. Logan, M.D., Rochester, Chairman.
Committee on Diabetes—J. R. Meade, M.D., St. Paul, Chairman.
Committee on Fractures—E. T. Evans, M.D., Minneapolis, Chairman.
Committee on General Practice—R. H. Creighton, M.D., Minneapolis, Chairman.
Historical Committee—Robert Rosenthal, M.D., St. Paul, Chairman.
Committee on Industrial Health—L. S. Arling, M.D., Minneapolis, Chairman.
Committee on Maternal Health—J. J. Swendson, M.D., St. Paul, Chairman.
Committee on Medical Testimony—E. M. Hammes, M.D., St. Paul, Chairman.
Committee on Military Affairs—J. H. Tillisch, M.D., Rochester, Chairman.
Committee on Nervous and Mental Diseases—W. P. Gardner, M.D., St. Paul, Chairman.
Committee on Ophthalmology—T. R. Fritsche, M.D., New Ulm, Chairman.
Committee on Public Health Education—A. E. Cardle, M.D., Minneapolis, Chairman.
Committee on Radio—R. M. Burns, M.D., St. Paul, Chairman.
Speakers' Bureau — Haddon M. Carryer, M.D., Rochester, Chairman.
Editorial Committee—C. B. Drake, M.D., St. Paul, Chairman.

The Committee approved the above reports, and recommends the following be added to the report of the Committee on Ophthalmology:

1. That it be considered unethical for any member of our association to accept fees or other remunerations in the form of rebates, refunds, or gratuities.
2. That publicity be given this policy, so that the public will be informed as to the policy of this association.
3. That any savings that may be incurred from the adoption of this new policy will be in favor of the patient.
4. That it be suggested that if any county medical society find a member violating this recommendation, he shall be subject to disciplinary action for infraction of the above.
5. That the Committee on Ophthalmology meet with various optical companies to standardize a policy regarding the dispensing of glasses.

The Committee recommends that efforts be continued along the lines of the Public Health Education Committee; that continued use of Speakers' Bureau, radio, advertising and literature distribution be encouraged.

The question of cost, particularly the advertising campaign, is a matter for definite consideration. The Committee finds that there has been inequitable distribution of cost, and recommends that this be rectified. The Committee suggests that the Council consider this matter in the year ahead.

The Committee recommends that the University of Minnesota attempt to gear post-graduate education to that of general practice; that, in an issue of Minnesota Medicine, the Committee on Maternal Health publish a routine satisfactory office procedure for RH testing; that the Committee on Medical Testimony continue to see to it that all medical testimony given in the courts continue on its present high plane.

The House of Delegates accepted the report with the exception of the reports of the Committees on General Practice, Maternal Health, Medical Testimony, Ophthalmology and Public Health Education, which were then discussed separately.

A manual on the establishment and operation of the Department of General Practice in hospitals was added to the report of the Committee on General Practice and accepted by the House.

The House accepted the recommendations of the committee regarding the report of the Committees on Ophthalmology, Maternal Health, Medical Testimony and Public Health Education.

Dr. Sheppard then called for Medical Economics Reports, Dr. H. E. Wilmot, Litchfield, Chairman.

Medical Economics Report

Dr. Wilmot: The Reference Committee for the Medical Economics Reports met in the Hotel Duluth, June 11, 1950. The committee considered the following reports:

Editing and Publishing Committee—E. M. Hammes, M.D., St. Paul, Chairman.
Committee on Interprofessional Relations—W. P. Gardner, M.D., St. Paul, Chairman.
Medical Advisory Committee—W. H. Hengstler, M.D., St. Paul, Chairman.
Committee on Medical Economics—George Earl, M.D., St. Paul, Chairman.
Committee on Medical Ethics—R. D. Mussey, M.D., Rochester, Chairman.
Committee on Public Policy—R. F. Erickson, M.D., Minneapolis, Chairman.
Committee on University Relations—E. M. Hammes, M.D., St. Paul, Chairman.

The committee accepted all the reports, with the following recommendations:

That an independent State Board of licensing practical nurses be recommended to the state legislature;

That, when issuing membership cards, the State association make some mention that the section which is to be sent to the Medical Advisory Committee in case of a malpractice suit does not mean that assistance is automatically forthcoming from the Medical Advisory Committee;

That the ads in the educational series be set off more distinctly in the newspapers.

The House accepted the report as a whole, referring the question of a state board on licensing practical nurses back to committee for consideration. Dr. Sheppard then called for the report of the Reference Committee on Miscellaneous Medical Economic Reports, Dr. L. E. Sjostrom, St. Peter, Chairman.

Miscellaneous Medical Economic Reports

Dr. Sjostrom: The Reference Committee for Miscellaneous Medical Economic Reports met in the Arrowhead Room on June 11, 1950 and considered the following reports:

Insurance Liaison Committee—A. W. Adson, M.D., Rochester, Chairman.
Committee on Medical Service—A. W. Adson, M.D., Rochester, Chairman.
Committee on Rural Medical Service—Paul C. Leck, M.D., Austin, Chairman.
Committee on State Health Relations—C. E. Proshek, M.D., Minneapolis, Chairman.
Committee on Veterans Medical Service—R. H. Creighton, M.D., Minneapolis, Chairman.
The Committee accepted all reports.

The report was accepted by the House and the Speaker called for the report of the Officers and Councilors, Dr. C. E. Rea, St. Paul, Chairman.

Officers' and Councilors' Reports

Dr. Rea: The Reference Committee for Officers and Councilors met on June 11, 1950, and the committee discussed the following reports:

Secretary's and Executive Secretary's Report, Councilor Reports from Districts One through Nine.

The committee wishes to commend the Medical Press Conference. The committee makes the following recommendation: That the designation of practical nurses be changed and the name "nurses' aide" be submitted for the term "practical nurse."

The House of Delegates accepted the report as a whole and referred its recommendation concerning practical nurses to the committee on Interprofessional Relations. The meeting adjourned at 5:30 p.m.

Second Meeting, Sunday, June 11, 1950

The Ballroom, Hotel Duluth
Duluth, Minnesota

The meeting of the House of Delegates of the Minnesota State Medical Association reconvened in the Ballroom of Hotel Duluth, Duluth, Minnesota at 8 p.m., Dr. Charles G. Sheppard, presiding.

The first order of business was a unanimous acceptance by the House of a 1949 recommendation of the Finance Committee that the $10 assessment, then in force, be continued for 1950, and, thereafter, dues be raised to $30 and the Constitution be thus amended.

The next item was a report from John Poor, substituting for Jarle Leirfallom, on the activities of the Division of Social Welfare. Mr. Poor reported that the number of people receiving old age assistance increased from 9,621 in 1946 to 14,256 in 1949. The total cost in 1949 was $4,973,000. Mr. Poor also explained the controversial Medical Estimate Form, the prior authorization form used by practitioners in estimating the amount of medical care needed by persons receiving old age assistance. The problem of the shortage of beds in rest homes and the shifting of the burden of caring for older folks, from their children to the county and state, were discussed by Mr. Poor, who recommended that doctors should not allow themselves to be talked into recommending rest home care unless the patient actually needs medical treatment. Mr. Poor stated:

> ". . . we are certain that in order to bring about a satisfactory medical program in public assistance, we, in public welfare, will require more and more cooperation from the medical profession. We can only achieve a successful program through the active participation of advisory committees made up of medical practitioners. We hope that our County Welfare organizations can come to the medical practitioners and ask for advice and help and they can get your cooperation in running their program locally. In an effort to control rising medical cost, we require follow-up checkups of recipients by the doctors attending these people. If the doctor indicates that the recipient no longer needs medical care, our County Welfare Board staff will be required to move these patients to other facilities as soon as possible.
>
> "For the staff of the Division of Social Welfare, I would like to convey our most sincere thanks to the medical profession of Minnesota for their interest and co-operation in helping us meet the problems of furnishing medical care to the aged of this state."

Supplementary remarks were made by Dr. F. F. Callahan, St. Paul, and Dr. A. W. Adson, Rochester.

Dr. Sheppard next called for a report on Minnesota Medical Service, which was given by Dr. McKinley. Dr. McKinley reported that Blue Shield, as of April, 1950, has an enrollment of 322,288. He said that "the success of the plan could not have been possible without the wholehearted support of the physicians of the state on the individual level, as well as on the organization level . . ."

Following this, the Speaker asked for a report of the Minnesota State Board of Medical Examiners by Dr. Julian Dubois. Dr. Dubois was not present, and the report was read by Dr. Magney, Duluth. Dr. Magney reported that during 1949 the Board licensed 320 doctors; the largest number ever to be licensed in a single year being 420 in 1947. The problem of licensing Displaced Persons to practice medicine in Minnesota has proved to be one which takes time and careful consideration. The Board of Medical Examiners, said Dr. Magney, wishes to continue to enlist the aid of members of the medical profession in this difficult job of processing applicants for the privilege of practicing medicine in this state.

Dr. Sheppard then called for the report of the Minnesota Department of Health, given by Dr. A. J. Chesley.

Dr. Chesley reported that during 1949, Minnesota had 73,000 live births. He said that the incidence of tuberculosis is decreasing and that deaths from the disease are also much lower. Dr. Chesley also stated that the nursing service is going on well.

Speaker Sheppard asked for the report of the Board of Basic Science, presented by Dr. Tregilgas who explained the work of the Board in reviewing applications for certificates.

Speaker Sheppard adjourned the House at 11 p.m. until June 12 at 12:15 p.m. for a luncheon, to be followed by the regular meeting at 1:30.

Third Meeting, Monday, June 12, 1950

The Ballroom, Hotel Duluth
Duluth, Minnesota

The House of Delegates reconvened at 1:30 p.m., Monday, June 12, 1950.

The first order of business was the final report of the Council by Dr. Campbell.

The Council voted to withhold approval of the Kellogg Plan, now proposed for Minnesota hospitals, until such time as the objectionable features were eliminated. The Council voted to refer to the Committee on First Aid and Red Cross a proposal to set up a separate committee on blood and its uses and the preparation of a brochure on blood use to be distributed to association members.

The Council considered a "Guide for Industrial Health Practice in Minnesota." Action on the Guide was tabled until the meeting on Tuesday, June 13, with the Minnesota Department of Health. Also, the Council referred to the Committee on Industrial Health the matter of investigating ways and means of effecting a waiver to that portion of the Workman's Compensation Law involving liability incurred in connection with employment of rehabilitated persons, thereby assisting the Department of Rehabilitation in the re-employment of such persons.

The Council accepted the recommendation of the Committee on State Health Relations that the county medical societies be urged to ask members of their societies to run for the office of coroner, as an act of public service, as this position was often found to be held by unqualified persons.

Also included in the final report of the Council were these recommendations: Dr. J. Arnold Bargen of Rochester re-elected as a Delegate to the American Medical Association; Dr. R. H. Creighton, to succeed Dr. J. C. Hultkrans as an Alternate Delegate to the American Medical Association, taking office in January, 1951; Dr. F. J. Elias to succeed Dr. W. A. Coventry as a Delegate to the American Medical Association; Dr. W. L. Burnap re-elected as an Alternate Delegate to the American Medical Association.

The Council voted to endorse and support the program of the Minnesota State Nutrition Council for the enrichment of flour and breads.

The Council recommended approval of a printed guide, "Medical and Dental Practices for Schools," contingent on approval by the Committee on Child Health.

The Council recommended that Mr. Rosell contact Dr. H. M. Carryer to discuss the invitation of the Olmsted-Houston-Fillmore-Dodge County Medical Society to hold the 1951 convention in Rochester.

The Council voted to convey to the State Health Relations Committee its approval of their recommendations that consideration be given to suitable licensing laws for Physical and Occupational Therapists in the state, and also recommended that the Committee on State Health Relations contact the Committee on Public Policy and Mr. Manley Brist, relative to the proper drafting of this matter for presentation to the legislature.

The Council referred to the Committee on Interprofessional Relations the recommendation of the American Pharmaceutical Association that a label "See your Physician" be placed on all preparations which carry the legend, "This preparation to be sold only on prescription."

The Council recommended that the House of Delegates pass a resolution supporting Senator Cain's resolution to investigate the administration of the office of social security, a resolution opposing Reorganization Plan No. 27 and H. R. 6000. Dr. Campbell then asked Dr. Reuben F. Erickson, Chairman of the Committee on Public Policy, to explain any proposed resolutions. Dr. Erickson explained that the association was not opposed to social security, per se, but only to weaknesses in administration of financial matters, etc. He then read Senator Cain's resolution, which suggests the creation of a Social Security Commission to advise the Congress and to provide the impartial technical knowledge required. Dr. Erickson urged members of the House of Delegates to return to their communities and write many individual letters to Senators, opposing the adoption of Reorganization Plan No. 27.

The report of the Council was accepted by the House.

At this time, Dr. Sheppard asked Dr. Elias to introduce two guests. Dr. Elias introduced Mrs. Henry E. Bakkila, Duluth, President, Woman's Auxiliary to the Minnesota State Medical Association, and Mrs. David B. Allman, Atlantic City, New Jersey, President, Woman's Auxiliary to the American Medical Association.

Next was the report of the Resolutions Committee, Dr. Wilson, Chairman.

Resolutions Committee Report

WHEREAS, the House of Delegates acknowledges and appreciates the valuable contributions of many groups and individuals to the success of the ninety-seventh annual meeting of the Minnesota State Medical Association,

NOW, THEREFORE BE IT RESOLVED, that specifically the House of Delegates extends thanks:

To the officers and members of the St. Louis County Medical Society, the St. Louis County Medical Auxiliary and the Committee on Local Arrangements for their constant efforts in arranging many parts of the program and in imparting the hospitality of the conference city;

To the management of the Hotel Duluth, Hotel Spalding, Hotel Holland, Hotel 5th Avenue, Hotel Lenox, Hotel McKay, Hotel Lincoln, Hotel Cascade, Hotel Arrowhead and Hotel Hamilton for prompt and courteous attention and service to convention guests and delegates;

To Radio Stations KDAL, WEBC and WREX for making available their facilities for the schedule of broadcasts in connection with the meeting; and

To the *Duluth Herald News-Tribune*, the *Minneapolis Star*, the *Minneapolis Tribune*, the *St. Paul Dispatch*, the *St. Paul Pioneer Press*, the *Associated Press* and the *United Press* for their fine advance notices and excellent coverage of the annual meeting.

* * *

WHEREAS, since the federal food and drug administration released the anti-histamine drugs, for the prevention and treatment of the common cold and hay fever, for sale over the drug store counter, without a physician's prescription, there has been an enormous and very promiscuous use of these drugs, and

WHEREAS, several of the manufacturing drug concerns have recently been cited by the federal government for misrepresenting their products, as the drug supreme in the prevention and treatment of the common cold and hay fever, and

WHEREAS, it is known to the medical profession that the promiscuous use of anti-histamine drugs, has resulted in many untoward reactions, many times serious, causing personal and industrial accidents; and in some instances, deaths have been reported throughout the United States, due to sensitization of over-dosage of these drugs, NOW THEREFORE,

BE IT RESOLVED that the House of Delegates of the Minnesota State Medical Association, in session at the annual meeting in Duluth, Minnesota, June 12, 1950, go on record as opposed to further over-the-counter distribution of these anti-histamine drugs, in order to protect the general public against the continued promiscuous use of these drugs, and

BE IT FURTHER RESOLVED, that we also inform the federal food and drug administration of this action and ask them to stop the uncontrolled use of such drugs and that their use be limited to the written prescription of the patient's physician.

* * *

WHEREAS, the Reference Committee on Medical Economic Reports has considered the report of the standing Committee on Interprofessional Relations and

WHEREAS, in spite of prolonged and diligent efforts on the part of the Interprofessional Relations Committee in the years past, no rapprochement with committees from other interested organizations has yet been reached, and

WHEREAS, no relief of the nursing shortage has so far been obtained, particularly in rural hospitals, and

WHEREAS, the public is becoming increasingly critical of the high cost of hospital care and the deteriorating service due to lack of trained nursing help, and

WHEREAS, present existing hospitals can and would train so-called practical nurses if a statewide uniform minimum curriculum were established, and

WHEREAS, the term "practical" nurse is generally unsatisfactory,

THEREFORE BE IT RESOLVED that the Minnesota State Medical Association go on record as recommending

First, the training of an adequate number of practical nurses, the training period of these nurses not to exceed two years,

Second, that this group of nurses shall have a special title to distinguish them from registered nurses,

Third, that the legislature of Minnesota be requested to create a board separate and distinct from the present Registered Nurses board, to supervise the training and licensing of this group of nurses.

BE IT FURTHER RESOLVED that our committee on Interprofessional Relations together with the committee on Public Policy be instructed to further this action by sponsoring and supporting appropriate legislation at the next session of the state legislature.

* * *

WHEREAS, the Honorable Oscar Swenson of Nicollet County, a member of the Minnesota Legislature for more than thirty years, has had the misfortune of being temporarily incapacitated because of illness; and

WHEREAS, the said Honorable Oscar Swenson has always been an ardent advocate of the highest standards in medicine, including sponsorship of the Minnesota Basic Science Law and reasonable appropriations for the teaching of medicine and the allied healing arts; NOW, THEREFORE,

BE IT HEREBY RESOLVED that the Minnesota State Medical Association, in annual session assembled, does hereby, through its House of Delegates, express our sincerest wishes for the early and complete recovery of the said Honorable Oscar Swenson and assure him of our appreciation for the many contributions that he has made, as a statesman, for the well-being of the people of our state; and

BE IT FURTHER RESOLVED that a copy of this resolution be forwarded to the Honorable Oscar Swenson, as a small token of the esteem in which we hold him.

The House of Delegates approved all of the resolutions.

Election of Officers

The next order of business was the election of officers. The House of Delegates elected the following:

President-Elect—J. F. Norman, M.D., Crookston.
First Vice President—Willard White, M.D., Minneapolis.
Second Vice President—A. E. Brown, M.D., Rochester.
Secretary—B. B. Souster, M.D., St. Paul.
Treasurer—W. H. Condit, M.D., Minneapolis.
Speaker, House of Delegates—C. G. Sheppard, M. D., Hutchinson.
Vice-Speaker—H. M. Carryer, M.D., Rochester.
Councilor, First District—John Waugh, M.D., Rochester.
Councilor, Second District—Roscoe C. Hunt, M.D., Fairmont.
Councilor, Ninth District—A. O. Swenson, M.D., Duluth.

Meeting Place 1951 Convention

The final order of business was the selection of the meeting place for the 1951 annual meeting. The House of Delegates voted to accept the invitation from the Olmsted - Houston - Fillmore - Dodge County Medical Society to hold the meeting in Rochester.

At 3 p.m. the Ninety-seventh Annual Meeting of the House of Delegates of the Minnesota State Medical Association was adjourned.

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RESEARCH IN THE SERVICE OF MEDICINE **SEARLE**

✦ Reports and Announcements ✦

SYMPOSIUM ON HYPERTENSION

A Symposium on Hypertension will be presented by the University of Minnesota in honor of Drs. Elexious T. Bell, Benjamin F. Clausen and George E. Fahr on September 18, 19 and 20, 1950.

Monday, September 18

Morning

Greetings
Anatomical Considerations of Hypertension
Harry Goldblatt
Experimental Studies on Hypertension
Arthur Grollman
The Relationship of Renin to Experimental Hypertension in the Rabbit
G. W. Pickering
The Renin-Angiotonin Pressor System
Irvine H. Page

Afternoon

The Participation of Hepatic and Renal Vasotropic Principles in Experimental Renal Hypertension
Ephraim Shorr
Blood Volume and Volume of Extracellular Fluid in Experimental Hypertension
Eduardo Braun-Menendez
The Role of the Adrenal Cortex in the Pathogenesis of Experimental Hypertension
Hans Selye
The Mechnasim of Hypertension Due to Desoxycorticosterone
Eduardo Braun-Menendez
Sympatho-Adrenal Factors in Hypertension
Mark Nickerson

Evening

Experimental Hypertension
Eduardo Braun-Menendez

Tuesday, September 19

Morning

Pathologic Anatomy in Essential Hypertension
Elexious T. Bell
Some Observations on Renal Vascual Disease in Hypertensive Patients Based on Biopsy Material Obtained at Operation
Reginald H. Smithwick
The Mechanism of Development of Hypertension in Chromic Genuine Nephrosis
George E. Fahr
Renal Hemodynamics in Essential Hypertension
Herbert Chasis
The Heart in Essential Hypertension
Benjamin J. Clawson

Afternoon

The Adrenal Cortex and Hypertensive Vascular Disease
George A. Perera
The Participation of Hepatic and Renal Vasotropic Principles in Essential Hypertension in Man
Ephraim Shorr
Pulmonary Hypertension
Richard V. Ebert
Life Situations, Emotions, and Arterial Hypertension
Harold G. Wolff
Vascular Reactivity in Essential Hypertension
E. A. Hines

Evening

The Pathogenesis of Hypertensive Encephalopathy
G. W. Pickering

Wednesday, September 20

Morning

The Natural History of Hypertensive Vascular Disease
George A. Perera
Blood Lipid Transport in Hypertensive Patients and Its Relationship to Atherosclerotic Complications
John W. Gofman
The Hemodynamic Effects of Various Types of Therapy in Hypertensive Patients
Robert W. Wilkins
Sympathetic Blockade in the Therapy of Hypertension
Mark Nickerson
The Effect of Sympathectomy upon Mortality and Survival Rates of Patients with Hypertensive Cardiovascular Disease
Reginald H. Smithwick

Afternoon

The Consideration of Life Situations and Emotions in the Management of Patients with Hypertension
Harold G. Wolff
Recent Experiences with Pharmacologic Treatment of Hypertension
Robert W. Wilkins
The Dietary Treatment of Hypertension
Carleton B. Chapman
Pyrogens in the Treatment of Malignant Hypertension
Irvine H. Page

Physicians desiring to attend should address Dr. George N. Aagaard, 3411 Powell Hall, University of Minnesota, Minneapolis 14, Minnesota.

TWIN CITY BLOOD BANKS ARRANGE RECIPROCAL "POOL"

Patients in need of Red Cross blood in either Saint Paul or Minneapolis can now get it easier and faster than before because of a new reciprocal blood "pool" program set up between the Saint Paul Red Cross Regional Blood center and the Minneapolis War Memorial Blood Bank.

Under the new arrangement, patients in Minneapolis or Saint Paul hospitals from counties participating in the Red Cross program can now receive blood immediately when needed from the blood bank in the city in which they are hospitalized. Such patients are under no obligation to have friends or relatives replace this blood, because it will be furnished by the blood bank in which their donor club takes part.

For instance, a patient in a Minneapolis hospital from a county which participates in the Red Cross blood program and which has credit for blood in Saint Paul, can receive blood when needed from the Minneapolis War Memorial Blood Bank. It will be replaced by the Saint Paul Regional Blood Center. Likewise, members of donor clubs in the Minneapolis War Memorial Blood Bank who may become patients in Saint Paul hospitals

(Continued on Page 830)

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TWIN CITY BLOOD BANKS ARRANGE RECIPROCAL "POOL"

(Continued from Page 828)

can receive blood there from the Saint Paul Red Cross Regional Blood Center. The blood will be replaced from the particular donor club's credit at the Minneapolis War Memorial Blood Bank.

The new program, set up through the efforts of Dr. E. V. Goltz, Medical Director of the Saint Paul Red Cross Regional Blood Center and G. Albin Matson, Director of the Minneapolis War Memorial Blood Bank, was developed because of various complications in the previous system.

With the new system, the patient from a Red Cross participating county, hospitalized in either city, receives the same benefits as are received by patients who are members of donor clubs in the Twin Cities.

INTERNATIONAL COLLEGE OF SURGEONS

The fifteenth annual assembly of the United States Chapter of the International College of Surgeons will be held in Cleveland, Ohio, October 31 to November 3, with headquarters at the Cleveland Hotel.

Surgical clinics will be held in several Cleveland hospitals on Monday, October 30. All scientific sessions will be held at the Cleveland Public Auditorium 9:00 a.m. to 5:00 p.m., Tuesday through Friday. A most excellent program has been arranged at which time some of the most prominent surgeons of America, and some foreign speakers, will discuss the current contemporary surgical scene.

Through the courtesy of Smith, Kline and French Laboratories, a fine colored television program of surgical procedures, originating from the St. Vincent's Charity Hospital, Cleveland, will be shown daily in the auditorium from 9:00 a.m., to 1:00 p.m. Motion pictures will also be presented each day depicting many of the recent advances in surgery and surgical technique.

One of the highlights of the meeting will be the annual banquet at the Statler Hotel on Thursday evening when America's great surgeon, Dr. Frank Lahey of Boston, will talk on "Some of the Recent Advances in Surgery." Dr. Elmer Henderson, President of the American Medical Association, will deliver an address on "The Importance of International Co-operation in Surgery."

Reservations may be secured by writing to the Committee on Hotels, International College of Surgeons, 511 Terminal Tower, Cleveland 13, Ohio. Preliminary programs may be obtained from the central office, 1516 Lake Shore Drive, Chicago 10.

AMERICAN ROENTGEN RAY SOCIETY

The American Roentgen Ray Society will hold its fiftieth anniversary meeting in St. Louis, September 26-29.

The scientific sessions and the scientific and commercial exhibits will be held in the Hotel Jefferson in St. Louis.

This year's Caldwell Lecture will be delivered on September 27 by Dr. Henry L. Bockus, professor and chairman of the Department of Internal Medicine in the Graduate School of Medicine, University of Pennsylvania, Philadelphia. His subject will be "The Role of Roentgenology in Gastroenterology."

The convention program is being arranged by a committee headed by President-elect B. P. Widmann, M.D., of Philadelphia.

The society president is Dr. U. V. Portmann, of Cleveland.

NEW FILM ON CANCER

"Self-Examination of the Breast" is the name of a new sound, color, 16 mm. film that has been produced by the Cancer Institute and the American Cancer Society.

This film demonstrates how women can and should systematically examine their breasts to detect changes that may be due to early cancer. Change of contour, size dimpling, and lumps are stressed, with advice to make examinations of the breasts periodically and go to the doctor at once if anything unusual is detected. This film will be shown widely to groups of women throughout Minnesota.

"All practicing physicians should see this film so that they will be familiar with the instructions in self-examination their patients are attempting to carry out and have an understanding attitude towards the many women who will come to their office because they think they have discovered something wrong," says Dr. A. H. Wells, president of the Minnesota Division, American Cancer Society.

The Minnesota Division of the American Cancer Society and the Minnesota Department of Health have prints of the film, and arrangements can be made to show it at county medical society meetings or hospital staff meetings.

RESEARCH IN ARTHRITIS

The Arthritis and Rheumatism Foundation is offering fellowships for research in the basic sciences related to the study of arthritis. These fellowships carry a stipend of from $4,000 to $6,000, depending upon the needs and ability of the worker, and run for a period of one year. The fellowships would begin in July, 1951, although earlier appointments would be considered by the committee.

The Foundation is eager to back a candidate, rather than a project, an institution, or a hospital. It hopes to arouse interest in arthritis in a wider circle of medical investigators and to encourage able, inquiring minds.

Applications should be sent to the Arthritis and Rheumatism Foundation, 535 Fifth Avenue, New York 17, New York, by January 1, 1951. Notification of the fellowships granted will be made March 1, 1951.

If any applications are received by September 15, 1950, they will be acted on at that time and notification made immediately.

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CRIPPLED CHILDREN SERVICES

The 1950 Fall Clinic Schedule of the Division of Social Welfare, Medical Services Unit, Crippled Children Services, is as follows:

Place	*Date*	*Building*	*Counties*
Winona	September 9	Central School	Winona Wabasha Olmsted Fillmore Houston
Marshall	September 16	High School	Lyon Lincoln Redwood Yelow Medicine Lac qui Parle
Fergus Falls	September 23	High School	Otter Tail Wilkin
Bemidji	September 30	High School	Beltrami Clearwater Hubbard
Virginia	October 7	Technical High	St. Louis
Crookston	October 14	High School	Polk Mahnomen Norman
Little Falls	October 21	High School	Morrison Todd Mille Lacs
Willmar	October 28	Auditorium	Kandiyohi Swift Chippewa Renville Meeker McLeod
Mankato	November 4	Franklin School	Blue Earth Sibley Nicollet LeSueur Watonwan Brown Waseca Martin Faribault
Anoka	November 11	Lincoln School	Anoka Isanti Chisago Washington Hennepin Ramsey

MINNESOTA SOCIETY OF CLINICAL PATHOLOGISTS

The annual session of the Minnesota Society of Clinical Pathologists was held in Duluth, June 12, 1950, during the annual meeting of the Minnesota State Medical Association. It was featured by the Society's annual A. H. Sanford Lecture before a general session of the association by Ancel Keys, Ph.D., on the subject of "Diet and Cardiovascular Disease," and by an all-day tumor seminar under the direction of Dr. Robert Hebbel of the University of Minnesota, and his associates, Drs. John McDonald and Malcolm Dockerty of the Mayo Clinic. The seminar was made possible by a grant of $300.00 contributed by the Minnesota Division of the American Cancer Society, and attended by thirty members who expressed enthusiastic approval of the manner in which it was conducted, and of the material presented. The Society voted to make the seminar an annual feature event. The fall meeting is scheduled in Minneapolis. The officers elected for the ensuing year are: President, John F. Noble; Vice president, James McCartney; Secretary-Treasurer, Kano Ikeda; Councillors, John McDonald, William Knoll, and Nathaniel Lufkin.

COURSE IN POSTGRADUATE GASTROENTEROLOGY

The National Gastroenterological Association is again offering a course in postgraduate gastroenterology on October 12, 13, and 14, at the Hotel Statler in New York City, immediately following the fifteenth annual convention, to be held at the same place on October 9, 10 and 11.

The course will be under the personal direction of Dr. Owen H. Wangensteen, of the University of Minnesota Medical School, who will be the surgical co-ordinator, and Dr. I. Snapper, of Mt. Sinai Hospital and the College of Physicians and Surgeons, Columbia University, who will be the medical co-ordinator. They will be assisted by a distinguished faculty.

The course is open to members and non-members of the Association who have had adequate preliminary training. However, preference in registration will be given to members of the Association. The course will not be available under the provisions of the GI Bill of Rights because of the many difficulties in obtaining certificates of eligibility and other necessary Veterans Administration forms.

The fee is $25 for the three days for those affiliated with the National Gastroenterological Association, and $35 for non-members. Registration blanks may be obtained from Mr. Daniel Weiss, 1819 Broadway, New York 23, N. Y.

POSTGRADUATE SEMINARS

The University of Minnesota School of Medicine in conjunction with the Minnesota State Medical Association and the Minnesota Department of Health will hold six professional medical postgraduate seminars throughout Minnesota during 1950-1951.

The areas, together with approximate attendance dates, are these:

1950

Crookston—September 13 to November 1
Virginia—September 21 to November 9

1951

Moorhead—January 3 to February 21
Willmar—January 11 to March 1
Worthington—March 6 to April 24
Albert Lea—March 14 to May 2

The seven courses held throughout the state in 1949-50 were extremely well received and professional attendance and interest was excellent.

Heart disease, cancer control, and mental health will be the subjects of this year's programs. Latest information on the diagnosis, treatment, and management of diseases in these three fields will be presented by leading medical lecturers from the University of Minnesota School of Medicine. Professional films and literature will in some instances be used to augment the speakers.

(Continued on Page 834)

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POSTGRADUATE SEMINARS

(Continued from Page 832)

Each seminar, as last year, will consist of eight consecutive weekly meetings, with each session about two hours long. Ordinarily two speakers, each on a different subject matter, will appear.

There is no charge for this series of lectures unless local physicians voluntarily assess themselves $2.00 each to obtain a certificate of attendance.

County medical societies are actively cooperating in the organization and conduct of these significant medical education events.

Coincident with these medical seminars, dentists and nurses of the area will hold eight sessions of their own, patterned generally after the physicians' courses, with subject matter tailored to their specific interests. The University of Minnesota Schools of Dentistry and Nursing, the Minnesota State Dental Association, the Minnesota State Nurses' Association, and local dental and nursing groups sponsor the seminars.

Other co-sponsors of the seminars are: The Minnesota Division of the American Cancer Society, the Minnesota Heart Association, and the Minnesota Mental Hygiene Society.

CONTINUATION COURSE

Female and male infertility will be the subject of the continuation course to be presented by the University of Minnesota on September 28-30. The course, intended for physicians specializing in obstetrics and gynecology, will be presented at the Center for Continuation Study. Distinguished visiting physicians who will participate as faculty members will include Dr. Warren O. Nelson, University of Iowa College of Medicine; Dr. Isador C. Rubin, Mount Sinai Hospital and New York University College of Medicine; and Dr. Fred A. Simmons, Harvard University Medical School. Staff members of the University of Minnesota and the Mayo Foundation will complete the faculty for the course.

Key topics which will be discussed during the three-day course include psychosomatic aspects of sterility, the investigation and management of the infertile couple, the management of amenorrhea, and artificial insemination.

SOUTHERN MINNESOTA MEDICAL ASSOCIATION

The Southern Minnesota Medical Association will hold its annual meeting on Monday, September 11, at Mankato, Minnesota. All physicians are welcome at the meeting, and applications for membership will be considered during the business meeting.

The program for the meeting is as follows:

"Hospital Management of Asthma" by Dr. Giles Koelsche of Rochester.

"Basic Facts About Gallbladder Surgery for General Physicians" by Dr. David P. Anderson of Austin.

"Common Injuries of the Knee Joint" by Dr. E. D. Henderson of Rochester.

"Thrombocytogenic Purpura" by Dr. Charles Stroebel of Rochester.

"Antabuse in the Treatment of Alcoholism" by Dr. J. C. Michael of Minneapolis.

"Trauma to Urethra and Bladder in Association with Pelvic Fractures" by Dr. E. J. Richardson of St. Paul.

"Urinary Acetone: Its Detection and Value in Treating Ambulatory Diabetics" by Dr. B. J. Mears of St. Paul.

"Management of Spontaneous Pneumothorax" by Dr. W. R. Schmidt of Minneapolis.

"Differential Diagnosis of Low Back and Sciatic Pain" by Dr. H. J. Svien of Rochester.

"Operative Measures to Improve Circulation in Arteriosclerosis Obliterans" by Dr. F. W. Quattlebaum of St. Paul.

"Emergencies in the Newborn Period" by Dr. L. E. Harris of Rochester.

"Acute Yellow Atrophy of Liver from S. H. Virus, Transmitted by a Blood Bank" by Dr. Winston R. Miller of Red Wing (Case Report).

"Shattered Kidney in Four-year-old Child" by Dr. R. I. Gruys of Windom (Case Report).

"Low Backache with Sciatic Pain" by Dr. L. I. Younger of Winona (Case Report).

PENNINGTON COUNTY SOCIETY

The Pennington County Medical Society was organized at a dinner meeting in Thief River Falls on June 29. It was announced that officers would be elected at a later meeting.

The initial meeting was highlighted by six guest speakers from the University of Minnesota Medical School who were on their way to Lake of the Woods for a brief fishing expedition. The six speakers were Dr. Clarence Dennis, Dr. Howard Horns, Dr. Arnold J. Kremen, Dr. Lyle Hay, Dr. Robert Hebbel and Dr. Robert Huseby.

SOUTHWESTERN MINNESOTA MEDICAL SOCIETY

The Southwestern Minnesota Medical Society held its regular monthly meeting at Worthington on June 26. Principal speaker of the evening was Dr. Rudolph W. Koucky, Minneapolis, who discussed advances in the diagnosis and treatment of diseases of the blood.

Dr. and Mrs. F. M. Manson, Worthington, were honored guests at the dinner meeting in recognition of the physician's having just become a member of the Fifty Club of the Minnesota State Medical Association.

The BCG vaccination campaign against tuberculosis is progressing throughout the world. As of March 1, twenty million children and young adults have been tested, and about ten million vaccinated against tuberculosis. Mass vaccination campaigns were completed in Czechoslovakia and Finland last summer, and will finish in Poland this spring. Work is under way in Austria, Greece, Yugoslavia, Morocco, Ceylon, India, Pakistan, Algeria, Tunisia, Italy, Egypt, Israel and Lebanon. Campaigns will soon begin in Syria, Malta, Mexico and Ecuador. BCG vaccination campaigns are a joint enterprise of UNICEF, Scandinavian relief societies and WHO.—*WHO Newsletter,* February-March, 1950.

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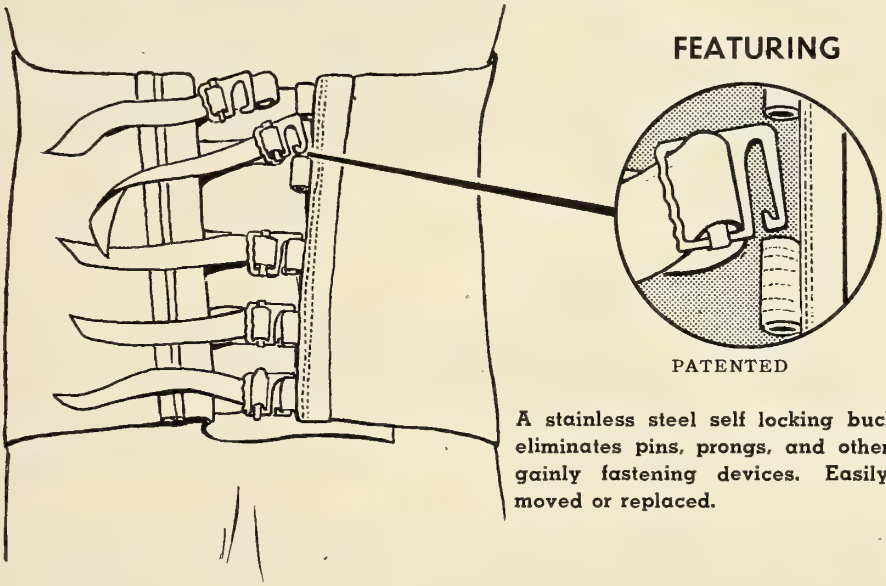

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In Memoriam

ERNEST L. BAKER

Dr. Ernest L. Baker of Minneapolis passed away July 20, 1950, just five days after celebrating the fortieth anniversary of his practice in Minneapolis.

Dr. Baker was born in Ithaca, Michigan, January 9, 1880. He attended the University of Michigan at Ann Arbor and the North Dakota Agricultural College and taught for five years as principal of grade and high schools in North Dakota, Iowa City and Fairmont. He then attended medical school at the University of Minnesota, where he received his medical degree in 1909. He was the first intern at the University Hospital, where he served from March 10, 1909 until July, 1910, in the building on Washington Avenue which had been converted from a former residence into a hospital and was used as such until the construction of the first unit of the present University Hospitals.

While in general practice, Dr. Baker maintained an office in Southeast Minneapolis. He was associated with Dr. George Douglas Head for a number of years.

Dr. Baker was a member of the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association. He was also a member of Alpha Omega Alpha, honorary medical society, and Nu Sigma Nu, undergraduate medical fraternity.

Dr. Baker is survived by his wife, Ethel Bliss Baker; a son, Dr. Milton E. Baker; a daughter, Priscilla Baker Cross; a brother, Henry C. Baker, Portland, Oregon; a sister, Mrs. William Newell, Onstet, Michigan, and four grandchildren. A son, Douglas Baker, preceded his father in death. Mrs. Baker had the distinction of being desigated "Minnesota Mother" in 1944.

BERTON J. BRANTON

Dr. B. J. Branton, mayor of Willmar commonly known as B. J., died on May 9, 1950. He was president of the Minnesota Public Health Association and was in the midst of the x-ray campaign being conducted in Kandiyohi County when stricken.

Dr. Branton was born in Willmar, September 20, 1883. He graduated from the University of Minnesota medical school in 1905 and interned at the Budd Hospital at Two Harbors and at St. Barnabas Hospital in Minneapolis.

Dr. Branton founded the Willmar Hospital in 1937. He was most active in local affairs. At the time of his death he was vice president of the Bank of Willmar, a member of the Board of the Kandiyohi County Fair, president of the Willmar Shrine Club, as well as mayor of Willmar. He had been Coroner of Willmar for a period of twelve years and was a past president of the Elks and the Kiwanis clubs. He had been president of the Willmar Chamber of Commerce and chairman of the Kandiyohi County Historical pageant held in 1949. He had been president of the Kandiyohi-Swift County Medical Society, president of the Northern Minnesota Medical Association, and in 1941 was president of the Minnesota State Medical Association. He was also a member of the American College of Surgeons, the Kandiyohi-Swift County Medical Society, the Minnesota State Medical Association and the American Medical Association. He was head of the Willmar Clinic, which he established at the time the Rice Hospital opened. He also headed the Branton Properties and the Branton Foundation. According to newspaper accounts, he was Willmar's leading citizen.

On July 11, 1906, he was married to Alice A. Brown. Surviving are one son Calvin F. Branton of Saint Paul and two daughters, Alice (Mrs. Clifford Marlow) of Willmar and Elizabeth (Mrs. Chester I. Miller) of Minneapolis.

* * *

It is a great privilege to pen a tribute to our recently departed comrade, Bertram J. Branton. Nothing would be added by enumerating again the many honors bestowed upon him and the distinguished services he rendered in various capacities; so briefly I shall mention some of the characteristics which distinguished him.

He lived an efficient well-balanced life from youth to maturity.

He was a man of high intelligence, and one who had his mind under control, constantly holding it to some worthwhile endeavor.

He was a shrewd businessman, but never allowed his personal desires to overbalance the public good.

He was an ambitious man, but his ambitions were chiefly directed towards the public interests.

He was an able physician and surgeon, using his skill not so much for personal aggrandizement as for the public welfare.

He was public spirited, giving of his time and talents to advance the interest of his community and to promote the welfare of the state and country.

He was a moral man and lived by his ideals day in and day out.

Bertram J. Branton is one of the rare examples of a man who throughout life had courage and force of character sufficient to live each day in the best way possible. He died with no worry about what he should or should not have done.

We physicians are justified in a feeling of pride that, as a group, we have produced more men of this type than any other group; and in particular, the Minnesota State Medical Association can be proud that it has contributed more than its share of such men. May we ever hold high the standard of service exemplified by Bertram J. Branton.

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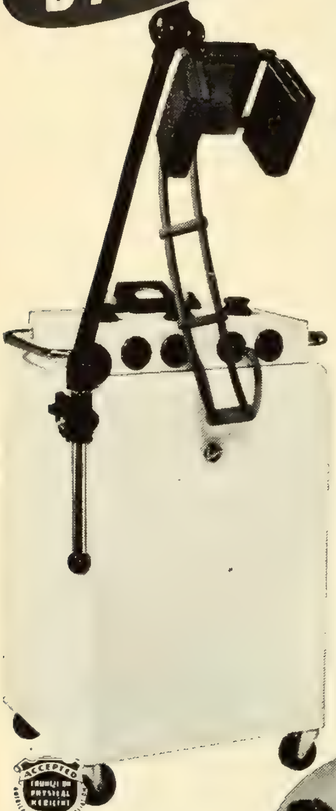

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ARCHIBALD E. CARDLE

On June 23, 1950, in the worst air disaster in American history, Medicine lost one of its most able and distinguished members, and one of its most sincere and untiring servants. The entire medical profession, his friends and patients mourn the death of Dr. A. E. Cardle.

Dr. Cardle was born in El Reno, Oklahoma, April 27, 1899. He was graduated from the University of Iowa medical school in 1923, served an internship at Maryland General Hospital and a residency at the Minneapolis General Hospital. He entered practice in Minneapolis, associating himself with Dr. J. G. Cross in the practice of internal medicine. After Dr. Cross' death, he continued alone.

Dr. Cardle had been a delegate to the House of Delegates of the Minnesota State Medical Association, Councilor for the Sixth District for six years before becoming President of the Minnesota State Medical Association in 1948, the Association's youngest President. Since 1946 he had been Secretary of the Minnesota Academy of Medicine.

He had been named a delegate from Minnesota to the 1950 meeting of the American Medical Association and was returning from the East preparatory to leaving for San Francisco when he died, one of fifty-eight lost that stormy night over Lake Michigan.

In final tribute to a fine man and a good doctor, may I say in behalf of those who knew him well that to work with "Arch" was a joy and a privilege.

His excellent judgment helped steer Medicine through some turbulent times. He had a rare faculty for understanding the public's reaction toward the medical profession and was unexcelled in interpreting Medicine's accomplishments and objectives to the public.

In his capacity as chairman of the Public Health Education Committee, Arch played the leading role in our successful efforts to swing an enlightened public against compulsory health insurance.

The advertising campaign now being so extensively conducted in the newspapers throughout the state is largely Arch's "brain child," and was prepared under his direction by an experienced and talented public relations expert. In national medical circles, he was receiving increasing recognition for his sincere and effective efforts in public education and, had he been spared, unquestionably he would have been called upon to expand his activities beyond our own state.

Arch's modest demeanor, his exceptional kindliness, unfailing optimism and good humor will be sorely missed by all who have been privileged to enjoy his friendship.

He is survived by his wife, Edith, and two children, Mary and John.

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OSCAR J. ESSER

Dr. Oscar J. Esser, of New Ulm, a specialist in eye, ear, nose and throat diseases, died July 7, 1950, at the age of forty-eight.

Oscar Esser was born September 27, 1901, in Dane County, Wisconsin. He moved with his parents to New Ulm as a child. His medical education was obtained from Marquette University medical school where he graduated in 1927.

He practiced for short periods at Ossian, Iowa, and later at Gibbon and New Ulm, maintaining offices in both towns. He then practiced at Tracy for a time. Two years ago he entered the New York City Polyclinic and took a special course in eye, ear, nose and throat diseases. He returned to New Ulm to practice but maintained his home at Gibbon.

Dr. Esser was a member of the Brown County Medical Society, the Minnesota State Medical Association and the American Medical Association.

Dr. Esser married Florence Stadtherr of Gibbon November 27, 1924. He is survived by his widow, two sons and a daughter. His mother, three brothers and three sisters also are living.

JOHN S. KILBRIDE

Dr. John S. Kilbride of Canby, Minnesota, passed away June 5, 1950, following an injury received in an automobile accident shortly before Christmas in 1949. He was eighty-four years of age.

Dr. Kilbride was born at Zwingle, Iowa, December 23, 1865. He attended high school at Dubuque, Iowa, and the Iowa State Academy at Iowa City. He received his M.D. degree from the College of Physicians and Surgeons at the University of Illinois in 1893. He took postgraduate work at the New York and Chicago Postgraduate schools and in 1910 continued his studies in Vienna.

He began practice in Dawson, Minnesota, in 1898 and after a year went to Sleepy Eye, where he practiced for a year before going to Canby. After returning from Vienna in 1910 he practiced at Watertown, South Dakota, for four years. In 1915 he and Dr. L. J. Holmberg formed a partnership in Canby which continued until 1936 when he joined his son, Dr. Edwin Kilbride, in Worthington. In 1943 he returned to Canby to practice until the war ended in 1945, when he returned to Worthington.

He was a former member of Nobles County Medical Society, the Minnesota State Medical Association and the American Medical Association.

Dr. Kilbride is survived by his son, Dr. Edwin Kilbride of Worthington, Linnae Kilbride, an attorney in Hastings, Zylpha Kilbride of Evanston, Illinois, and Kathleen (Mrs. Nelson Knoop) of DesPlaines, Illinois.

VERNON L. HART

Dr. Vernon L. Hart, well-known orthopedic surgeon of Minneapolis, drowned in Cedar Lake, Minneapolis, on July 12, 1950. He was fifty-one years of age.

Dr. Hart was born in Huron, Ohio, October 24, 1898. He obtained his M.D. degree from the University of Michigan in 1924 and took further training in surgery at the University Hospital, Ann Arbor, from 1924 to 1932.

Dr. Hart practiced at Dayton, Ohio, from 1932 to 1933, when he moved to Minneapolis to take over the orthopedic practice of the late Dr. Emil Geist. He was known for his work on congenital dislocation of the hip before he moved to Minneapolis.

Dr. Hart was a Fellow of the American College of Surgeons, a diplomate of the American Board of Orthopedic Surgeons, a member of the American Academy of Orthopedic Surgeons, the Clinical Orthopedic Society, the Minnesota Academy of Medicine, the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association.

Dr. Hart held the rank of Lieutenant Colonel in World War II and headed the orthopedic service at several army hospitals. He was also a member of the National Research Council and was a civilian consultant to the Surgeon General of the United States Army on a six-weeks inspection of the American Zone of Germany in in 1948.

Survivors are his wife and daughter, Louisa K.; a sister, Mrs. Vanessa Campbell of Huron, Ohio, and a brother, Vincent, of Cleveland, Ohio.

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HORATIO B. SWEETSER

Dr. Horatio B. Sweetser, a prominent surgeon of Minneapolis until his retirement in 1933, died May 23, 1950, at the age of eighty-eight.

Dr. Sweetser was born in Brooklyn, New York, July 13, 1861. He graduated from St. John's College in Brooklyn in 1877 and received his medical degree from the College of Physicians and Surgeons in New York in 1885. After interning at St. Francis Hospital, New York City in 1885-1886 he practiced in New York City for a brief period before coming to Minneapolis in 1887.

He was professor of anatomy and surgery at Hamline University Medical School and later at the University of Minnesota Medical School after the two schools were merged. He was a charter member of St. Mary's Hospital in Minneapolis, having been a member since 1887 and was chief of staff for many years.

Among the many organizations of which Dr. Sweetser was a member may be mentioned: the American College of Surgeons, the Western Surgical Association, the Minnesota Academy of Medicine of which he was president in 1919, the Minneapolis Surgical Society of which he was president in 1927, the Hennepin County Medical Society of which he was president in 1899-1900, the Minnesota State Medical Association and the American Medical Association.

He belonged to Phi Rho Sigma, the undergraduate medical fraternity and was a member of the Minneapolis Club, the Minneapolis Auto Club and the Bloomington Golf Club.

Dr. Sweetser is survived by two sons, Dr. Theodore H. Sweetser and Dr. Horatio B. Sweetser, Jr., of Minneapolis; and two daughters, Mrs. Frank Preston of Minneapolis and Mrs. Elizabeth Albrecht of Belle Plaine.

Dr. Sweetser was a fine gentleman and an expert surgeon. His pleasing personality and character won him a multitude of friends.

KENNETH G. WILSON

Word has been received of the death of Dr. Kenneth G. Wilson on June 19, 1950.

Dr. Wilson, who was a former fellow in ophthalmology and aviation medicine at the Mayo Foundation, was born in Minneapolis on August 27, 1915. He received his M.D. from the University of Minnesota and interned at St. Luke's Hospital in San Francisco. He entered the Mayo Foundation as a fellow in ophthalmology in July, 1941; later, he became interested in, and transferred his major subject to, aviation medicine. He left the Mayo Foundation in February, 1943, to go to Cleveland to practice aviation medicine and later moved to San Diego. At the time of his death he was residing in Laguna Beach, California.

Dr. Wilson was a member of the Psi Upsilon and Nu Sigma Nu fraternities.

Tuberculosis rates . . . rose in every European country seriously affected by the war, and there is now a growing realization in Europe that tuberculosis is our main public health problem.—Marc Daniels, M.R.C.P., D.P.H., *British Medical Journal,* Nov. 12, 1949.

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Woman's Auxiliary

AUXILIARY REPORTS AT AMA CONVENTION

The Woman's Auxiliary to the Minnesota State Medical Association reported to the national convention in San Francisco in June. Mrs. Charles W. Waas, the new president, read the report of the immediate past president, Mrs. H. E. Bakkila.

Highlights from the report state that Minnesota has twenty-nine auxiliaries and one branch, all working closely with their medical societies. Area health and guest days are gaining in popularity. Lay groups assist in planning and all voluntary health organizations are exhibitors. A book on health day procedure has been written with the aid of the State Department of Health. The Auxiliary sponsored the nineteenth annual State High School radio contest on tuberculosis.

A Public Relations Workshop, co-sponsored by the Minnesota State Medical Association, was held, consisting of a panel discussion of "Fundamentals of Community Health Education Program." Such media as press relations, distribution of literature, speakers bureau, radio, exhibits, personal contacts and health days were discussed. A new project is a "Five-Point Basic Program for Improvement of School Health Services."

During the year, the Auxiliary was visited by Mrs. David Allman, national president, and Mrs. Paul Craig, national public relations officer.

All county auxiliaries have had health education as their main project. One auxiliary had a study group, presenting such topics as "Your Hospital Dollar and Where It Goes," and "Co-operative Medicine." The president of the Minnesota State Medical Association addressed them. Another auxiliary sponsored a weekly radio program, "Your Health Hour." Most auxiliaries have volunteered their services, as well as financial aid, to the Cancer Society, Christmas seal sales, Red Cross drives, the Society for the Prevention of Blindness, the Mental Hygiene Society, the Nurses Scholarship and the Heart Association. The Auxiliary has a representative on the State Nutrition Committee, also many members are serving on boards and as officers of clubs throughout the state. One member is president of the state branch of the American Association of University Women.

Cooperation of officers and the aid of every individual member have combined to produce a successful year for the Woman's Auxiliary to the Minnesota State Medical Association.

Mrs. Benjamin B. Souster
Saint Paul

◆ Of General Interest ◆

Ground-breaking ceremonies for the twenty-two-story **Mayo Memorial Medical Center** at the University of Minnesota were held on July 5. Dr. J. L. Morrill, president of the University, turned the first shovelful of earth at the site of the structure in the quadrangle in front of the University Hospitals. Principal speaker for the occasion was Dr. Donald J. Cowling, chairman of the committee of founders of the Mayo Memorial.

It is expected that the $12,000,000 structure will be ready for occupancy in 1953. When completed, it will contain laboratories, classrooms, staff offices, three auditoriums, an underground garage, operating and hospital rooms, medical library, and quarters for research animals. The tower section will rise 250 feet above the ground.

* * *

Dr. Murray H. Hunter, formerly of Ancker Hospital, Saint Paul, has become associated in practice with Dr. A. H. Field of Farmington. A graduate of the University of Marquette Medical School, Dr. Hunter recently completed his internship at Ancker Hospital.

* * *

A testimonial dinner was given for **Dr. W. H. Valentine,** of Tracy, on May 27 by patients and fellow physicians in recognition of Dr. Valentine's fifty years of medical service to Tracy. The dinner was attended by 350 friends from Wisconsin and South Dakota as well as Minnesota.

Mr. William R. Mitchell presided as master of ceremonies, and the principal address was given by Dr. Roscoe C. Webb, of Minneapolis, a native of Amiret, who paid tribute to Dr. Valentine's service to the community. Other members of the profession called upon for remarks were Dr. H. J. Nielson, Dr. J. K. Helferty, Dr. W. G. Workman, Dr. G. W. Ferguson and Dr. R. R. Remsberg. Dr. S. A. Slater, Worthington, presented the honored guest with a certificate of recognition for his part in tuberculosis control and his work as president of the Lyon County Public Health Association for twenty-nine years. Congratulations were received from Governor Youngdahl and prominent medical and educational leaders in the state. Especially cherished was a telegram from the Sisters of St. Joseph, St. Mary's Hospital, Minneapolis. Dr. Valentine is the oldest living ex-intern of that hospital.

* * *

Dr. Wesley W. Spink, of the University of Minnesota Medical School, has been elected to the board of governors of the American College of Physicians. He will be governor for the organization in Minnesota until 1953. Dr. Spink was also given an honorary degree of Doctor of Science from Carleton College in June.

Dr. Richard A. Knudson, Forest Lake, announced late in June that he planned to leave his practice in Forest Lake about July 30 and move to Black River Falls Wisconsin. Dr. Knudson began his practice in Forest Lake in August, 1948. He was associated with Dr. J. A. Poirier for almost two years.

* * *

At a meeting of the North Dakota State Pediatric Society in Grand Forks on May 29, **Dr. Albert V. Stoesser,** Minneapolis, gave a talk at a luncheon and conducted a round-table discussion on "Modern Drug Therapy in Allergy." On the same day he spoke at the sixty-third annual meeting of the North Dakota State Medical Association in Grand Forks, discussing "Respiratory Allergy in Children."

In June, Dr. Stoesser attended the annual session of the AMA in San Francisco and spoke before the Section on Pediatrics on June 28. His subject was "Antihistamines in the Treatment of Allergic Diseases in Children."

* * *

After ten years of association with the Gamble Clinic in Albert Lea, **Dr. E. S. Palmerton** left on July 1 to specialize in ophthalmology at the University of Minnesota. Also on July 1, the Gamble Clinic changed its name to Nelson and Erdal, Physicians and Surgeons. It was announced that on August 1, Dr. Leonard M. Ellertson of Muncie, Indiana, would join the group in Albert Lea.

* * *

Dr. John L. Juergens has become associated with his father, Dr. H. M. Juergens, in the practice of medicine in Belle Plaine. A graduate of the Harvard Medical School, the younger Dr. Juergens interned at Minneapolis General Hospital.

* * *

On the evening of June 3, the medical department of the **University of Minnesota Medical School,** some 100 strong, attended a banquet at the Minneapolis Club in honor of three professors of medicine who have contributed outstanding service to the school—Dr. Henry Ulrich, Dr. S. Marx White and Dr. George Fahr.

It was Dr. Henry Ulrich who, as clinical professor of medicine, built up the University medical service at the Minneapolis General Hospital before it was taken over by Dr. George Fahr as full-time professor of medicine and chief of the medical service in 1927. More recently Dr. Ulrich taught at the University Hospitals until his retirement as emeritus professor in July, 1944. Dr. Fahr became emeritus professor on June 15 of this year. Dr. S. Marx White has given many years to teaching medicine at the University and was head of the department from

(Continued on Page 844)

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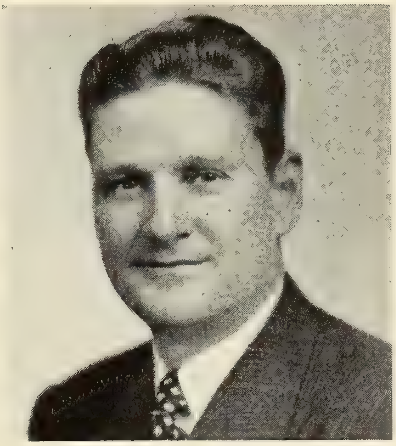

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(Continued from Page 842)

January, 1921, to November, 1925. He became emeritus professor in July, 1942.

Dr. Reuben Johnson, as toastmaster, entertained the banqueters with an apparently inexhaustible supply of stories, and tribute was paid to the honor guests by Drs. Lowry, Watson and Schaaf.

* * *

Dr. Gordon R. Kamman, Saint Paul, presented a paper on June 21 before the AMA Section of Nervous and Mental Diseases. His subject was "Traumatic Neurosis, Compensation Neurosis, or Attitudinal Pathosis?"

* * *

Dr. J. R. Harrie, formerly of Eveleth, began a three-year residency in radiology at the University of Michigan on July 1. Dr. Harrie became associated with the More Hospital in February, 1949, maintained offices in the More-Ewens Clinic in Virginia, and was city health officer at Mountain Iron.

* * *

Two Rochester couples sailed from New York on July 8 for a two-month trip through Europe. They were Dr. and Mrs. B. E. Hall and Dr. and Mrs. J. M. Stickney. For the two physicians, however, the trip was not planned to be just a vacation. Both Dr. Hall and Dr. Stickney were scheduled to speak at a meeting of the International Society of Hematology in England during August. In addition, Dr. Stickney spoke at the Fifth International Cancer Congress in Paris late in July, and Dr. Hall was scheduled to be on the program at the First International Congress of Internal Medicine in Paris during September.

* * *

An editorial in the *Crookston Daily Times* on July 11 paid tribute to **Dr. M. O. Oppegaard** as he began his fortieth year in the practice of medicine. After ten years of practice in various hospitals in the East, in New London and in Minneapolis, Dr. Oppegaard moved to Crookston in 1920. During his years there he has served in numerous civic and professional capacities, usually managing to handle several tasks simultaneously. He has been mayor of the city for three terms and holds that office at present.

* * *

Grants for cancer research announced by the Public Health Service on July 7 total $1,160,818. These awards will support cancer research in hospitals, universities and other non-federal institutions in thirty states and the District of Columbia. The grants were made by the National Cancer Institute following recommendations by the National Advisory Cancer Council and approval by Dr. Leonard A. Scheele, Surgeon General of the Public Health Service. Included are the following grants to the University of Minnesota: $8,023 to Dr. Edward Eaton Mason for investigation of gastric secretion and stomach cancer; $3,978 to Dr. Sheldon C. Reed for the study of biology of human breast cancer with particular emphasis upon heredity; $7,685 to Dr. Claude R. Hitchcock for chemical induction of stomach cancer in inbred strains of mice; $14,040 to Dr. Julian Wild for studying normal and malignant tissues by the use of ultrasound.

* * *

Dr. Robert L. Merrick has become associated with Dr. Wallace P. Ritchie at 917 Lowry Medical Arts Building, Saint Paul, for the practice of neurosurgery. Dr. Merrick is a native of Corydon, Iowa, and received his medical degree at the University of Minnesota in 1945. After serving in the Army for two years, he completed a residency in neurosurgery first at the Neurological Institute of New York and recently at the University Hospitals in Minneapolis.

* * *

Dr. Ralph Buesgens has opened offices in Waterville for the practice of medicine. A graduate of Creighton University, Dr. Buesgens recently completed his internship at St. Mary's Hospital, Minneapolis.

* * *

Two Mayo Clinic staff members, Dr. Lyle A. Weed and Dr. L. B. Woolner, were awarded silver medals by the AMA for their exhibit on cancers of the mouth at the annual meeting of the AMA in San Francisco during June.

* * *

Frederick J. Tenuto (alias Leonard Durham, Leonard Durken, John Thomas Lastella, Frank Pinto, Durso Thornberry, etc.) has escaped from the state of Pennsylvania to avoid confinement after conviction for the crime of murder. He is believed to be armed and is considered dangerous. Tenuto is thirty-five years of age, 5 feet 5 inches tall, weighs 143 pounds. He is stocky in appearance, has black hair, dark brown eyes and a dark complexion. He has an imperfect tattoo, S.J., on his left forearm and an imperfect tattoo, ANA, ANNA or AMA on his right forearm, a small brown mole on his right cheek and a one-and-one-half-inch scar over the right eye. A recurring skin eruption may lead him to seek medical care. **The office of the F.B.I.** in Minneapolis, Lincoln 6963, should be notified.

* * *

Dr. Gerald E. Larson and **Dr. Raymond C. Magnuson** opened offices in Cambridge on July 12 for the practice of medicine. Both physicians are 1949 graduates of the University of Minnesota Medical School and both served their internships in Duluth.

* * *

Miss Elsie T. Berdan has been appointed chief of the Nursing Branch, Division of Hospitals, Public Health Service. Miss Berdan is a native of Sleepy Eye. She graduated from St. Mary's Hospital School of Nursing in Minneapolis and later obtained both the Bachelor of Science and Master of Science degrees in nursing education at the Catholic University of America in Washington, D. C. Prior to her present appointment she served as associate chief of the Nursing Branch in the Division of Hospitals under Miss M. Constance Long, who has resigned.

* * *

Announcement was made on July 7 that **Dr. William T. Hudspeth** would become associated with the

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Have you ever stopped to analyze the basic security of a municipal bond? This can be done most easily by following the general procedure in the issuance of municipal bonds. Let us assume a Minnesota School District desires to issue bonds to provide money for the construction of a new school building.

A School District is an instrumentality of the State, administered by a Board elected by the voters within the territorial limits of the District. Once the Board has determined the necessity of a new school building and an estimate of the cost involved is known, an election is held on the question of issuing bonds.

If the election carries by the necessary majority, then the Board may sell the bonds and pledge as security the full faith and credit of the taxing district (the School District). At the time the bonds are issued the Board certifies a tax levy to the County Auditor to be levied during each of the years the bonds are outstanding which levy will be made automatically unless sufficient funds are on hand from other sources.

Funds derived from the collection of taxes for bonds and interest must be used only for that purpose and, should they prove to be insufficient, any other available funds must be used to meet bond payments. If necessary, additional taxes must be levied. There is no limitation on the taxes which may be levied on any taxable property based on its assessed valuation for Minnesota School Districts but the total school district taxes in any one year may not exceed an amount equal to $40 per capita of all persons residing in the District.

Taxes levied to pay principal and interest on these bonds are collected at the same time and as a part of other property taxes against all taxable property, both real and personal, in the District. These taxes have priority and come ahead of any other lien or claim on this taxable property. It is no exaggeration, therefore, for the holder of one of the School District's bonds to drive through the District, past the dairy and grain farms, past the factory and production plants in the community, along the railroad track, past the stores, bank, homes, etc., and say, "All of this property is security for my bond."

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Madison Clinic in Madison on July 14. A graduate of Cornell University, Dr. Hudspeth served his internship and a one-year residency in surgery at Syracuse University Medical Center. He then studied surgery for one year at the University of Minnesota and for two years at Swedish Hospital, Minneapolis. He served in the Army for three years.

* * *

After completing his third year of postgraduate medical study at Methodist Hospital, Dallas, Texas, **Dr. George T. Van Rooy** returned to Thief River Falls on July 3 and resumed his affiliation with the Bratrud Clinic there.

The December Clinical Session of the AMA, which was to have been held in Denver, will be held instead in Cleveland on December 5 through 8. Labor trouble in the building of the Denver Auditorium, with work stoppage, forced the change in plans. The local committee on arrangements had prepared an excellent program, which will now have to be scrapped and new committees appointed and a new program arranged.

* * *

Two additional physicians recently became associated with a Saint Paul group of roentgenologists, Drs. Schons, Medelman, Peterson and Nash, with offices at 572 Lowry Medical Arts Building and also

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Surgical Technic, Surgical Anatomy and Clinical Surgery, four weeks, starting August 7, September 11, October 9.
Personal Course in General Surgery, two weeks, starting September 25.
Surgery of Colon and Rectum, one week, starting September 11.
Esophageal Surgery, one week, starting October 16.
Breast and Thyroid Surgery, one week, starting October 2.
Thoracic Surgery, one week, starting October 9.
Gallbladder Surgery, ten hours, starting October 23.
Fractures and Traumatic Surgery, two weeks, starting October 9.
Basic Principles in General Surgery, two weeks, starting September 11.
GYNECOLOGY—Intensive Course, two weeks, starting September 25.
Vaginal Approach to Pelvic Surgery, one week, starting September 18.
OBSTETRICS—Intensive Course, two weeks, starting September 11.
MEDICINE—Intensive General Course, two weeks, starting October 2.
Gastro-enterology, two weeks, starting October 16.
Gastroscopy, two weeks, starting September 11 and October 23.
Electrocardiography and Heart Disease, four weeks, starting October 2.
DERMATOLOGY—Formal Course, two weeks, starting October 16.
Informal Clinical Course every two weeks.
UROLOGY—Intensive Course, two weeks, starting September 25.

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at 211 Midway Medical Arts Building, Saint Paul. The two new associates are **Dr. Barnard Hall** and **Dr. John B. Coleman.**

Dr. Hall, a graduate of the University of Oregon Medical School in 1942, interned at the University of Wisconsin. During his service in the Army he was associated with the Army School of Roentgenology and recently was a fellow in radiology at the University of Minnesota.

Dr. Coleman, who graduated from Northwestern University Medical School in 1943, interned at the Evanston Hospital. During his Army service he was at the Army School of Roentgenology, and from 1946 to 1949 he served a fellowship in radiology at the University of Minnesota. During the past year he has been associated with Dr. Richard Schatzki at Cambridge, Massachusetts.

* * *

Dr. and Mrs. E. P. Frisch, Willmar, sailed from New York on July 8 for a two-month trip through Europe. Dr. Frisch planned to attend the International Medical Congress in France late in July. The couple expected to return home on September 15.

* * *

Dr. Paul Carpenter, a staff member of the Oliver Clinic in Graceville, left on June 28 for Kansas City to begin a four-year residency in surgery at St. Margaret's Hospital.

* * *

The Board of Trustees and the AMA Council on Foods and Nutrition selected **Dr. Fuller Albright,** associate professor of medicine at Harvard Medical School, as the 1950 recipient of the Joseph Goldberger award in clinical nutrition.

The award was established in 1948 for the purpose of honoring physicians who have contributed importantly to the world's knowledge of nutrition. In addition, the award is made annually by the AMA to stimulate and encourage research in the field of nutrition. The award, which consists of a gold medal and $1,000 in cash, will be made at a meeting some time in the fall. The meeting site has not yet been selected.

Dr. Albright, who is connected with the Massachusetts General Hospital, received his medical degree from Harvard in 1924. He is best known for his studies of human metabolism as influenced by the endocrine glands. He studied the parathyroid glands and their influence on the body's use of calcium. He devoted most of his time to studying mineral metabolism.

* * *

The use of German physicians to help solve the medical staff shortage in Minnesota mental institutions was proposed by **Dr. S. Alan Challman,** Minneapolis, following his return from Europe early in July. Dr. Challman, who went on a sixty-day tour of Germany as a consultant to the Army Surgeon General, said that some German physicians are now assisting Americans in many Army hospitals in Germany. He stated that they would all like to come to the United States and that they probably would be of great use in our mental hospitals. "I hope to present to Governor Youngdahl a suggestion that Minnesota might change its medical licensing regulations enough to admit these men and perhaps limit them to practice in specific hospitals," he said. Dr. Challman is a clinical associate professor in psychiatry at the University of Minnesota.

* * *

Dr. George W. Snyder, Saint Paul, director of social hygiene for the Saint Paul Department of Education, has been named a trustee of the American Legion Hospital Association of Minnesota. The association arranges for the care of needy veterans and their dependents at the Mayo Clinic.

* * *

It was announced on July 8 that **Dr. and Mrs. Howard Kaliher** had decided to leave Pelican Rapids to travel and to take up duties in foreign countries. Their main plan, it was stated, was to locate in northern India and do mission work.

* * *

Dr. and Mrs. O. T. Clagett and **Dr. and Mrs. L. M. Eaton**, Rochester, returned home on June 27 after a three-month trip through the Pacific area. During the journey the two physicians spoke before groups in several cities in Australia, New Zealand and Hawaii.

* * *

Dr. Frances King-Salmon, resident physician at Glen Lake Sanatorium, was named a fellow of the American Medical College of Chest Surgeons at a meeting of the organization in San Francisco early this summer.

* * *

Dr. Donald C. Balfour, emeritus staff member of the Mayo Clinic, was awarded an honorary fellowship in the Royal College of Surgeons of Edinburgh in June. He delivered a series of lectures at the University of Edinburgh as part of his three-month tour of European cities.

* * *

Dr. John Bussman, formerly of St. Peter, was married in Minneapolis on June 17 to Miss Muriel Koenck, formerly of Wall Lake, Iowa. A graduate of the University of Minnesota Medical School, Dr. Bussman is now completing a fellowship in pediatrics at the University.

* * *

Wadena acquired a new physician when **Dr. James H. Kelly**, formerly of Saint Paul, arrived in Wadena on June 30 to become an associate of the Davis Clinic. Dr. Kelly, a graduate of the University of Minnesota Medical School, served his internship at Ancker Hospital, Saint Paul. He has completed a general residency at St. Luke's Hospital, Saint Paul, and a residency in internal medicine at Ancker Hospital.

* * *

Dr. and Mrs. L. G. Idstrom and family, of Wayzata, sailed on July 12 for an extensive tour of Europe. While in England, Dr. Idstrom planned to attend the International Radiological Congress being held in London.

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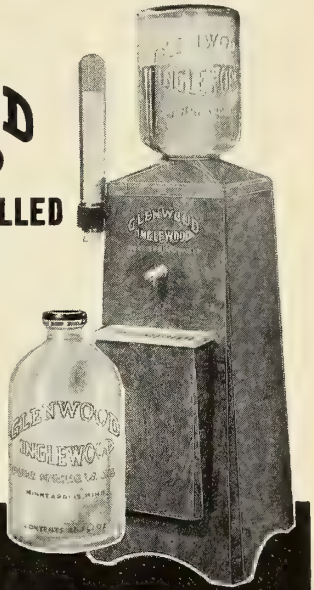

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Dr. Clarence Arlander, Minneapolis, announced late in June that, beginning July 1, **Dr. Carl Olson** would be associated with him with offices at 2300 Central Avenue. A graduate of Northwestern University Medical School, Dr. Olson interned at Minneapolis General Hospital.

* * *

Dr. Alois M. Scheidel, formerly of Minneapolis, has moved to Cokato and become a staff member of the Cokato Hospital.

* * *

Public contributions to the **Minnesota Heart Association Fund** during the 1950 campaign totaled $99,649, it was announced on July 11. Of the amount, $41,000 was contributed by Hennepin County.

* * *

Dr. William A. Bessesen, Minneaolis, sailed from New York on July 13 for Buenos Aires to attend the seventh biennial assembly of the International College of Surgeons, held August 1 to 7.

* * *

Dr. Charles Slocumb, Rochester, was elected president of the American Rheumatism Association at its annual meeting in San Francisco on June 24.

* * *

Dr. Arnold A. Anderson opened offices for the practice of medicine in Hopkins on July 1. A graduate of the University of Minnesota Medical School in 1943, Dr. Anderson interned at the San Diego County Hospital, California, and then completed a residency in internal medicine there. He served in the Army from 1945 to 1947. He recently completed three years of pediatric training at the Mayo Clinic.

* * *

Four hundred persons attended a reception honoring **Dr. I. G. Davis** of Rushford on July 7. The reception, which was given by Dr. R. V. Williams, Rushford, was to pay tribute to Dr. Davis on the occasion of his retirement from active practice. Dr. Davis practiced in Rushford for thirty-one years. His practice has been taken over by Dr. M. J. Woltjen.

* * *

Dr. Henry P. Staub, Minneapolis, received a master's degree in pediatrics from the University of Minnesota in June. A graduate of the University of Illinois, Dr. Staub has been a resident of Minneapolis for ten years. For the past two years he has been studying pediatrics at University and Minneapolis General Hospitals.

* * *

Ten young physicians, all war veterans and all with University of Minnesota postgraduate training, are building a $150,000 medical clinic in **St. Louis Park** (Minneapolis).

The large, one-story, modern building is expected to be ready for occupancy in 1951. The clinic will be able to offer the services of specialists in internal medicine, surgery, obstetrics and gynecology, and otorhinolaryngology. Most laboratory procedures will be handled by technicians in the building.

The group includes Dr. Richard Webber, Dr. Arnold Anderson, Dr. Donald Freeman, Dr. Alex Barno, Dr. Robert Green, Dr. David Anderson, Dr. John LaBree, Dr. Rovert Giebink, Dr. Sewell Gordon, and Dr. Wyman Jacobson.

* * *

Dr. Ellery M. James, formerly pathologist at St. Joseph's Hospital, Saint Paul, has opened a medical laboratory at 657 Lowry Medical Arts Building, Saint Paul.

* * *

Dr. Samuel Miller has moved to Albert Lea to become radiologist at the Naeve Hospital. He recently completed a residency in radiology at the University Hospitals.

HOSPITAL NEWS

The Zumbrota Community Hospital was officially dedicated at ceremonies held on June 30. The dedicatory address was delivered by Dr. Viktor Wilson, Rochester. Open house was held at the hospital on July 2.

BLUE CROSS-BLUE SHIELD NEWS

Minnesota Blue Shield paid 4,625 claims during May, 1950 and 4,788 claims during June, 1950. The May payment totaled $189,611.93, the June payment $184,427.37. Total payments to participating doctors for May covering 4,420 claims was $179,403.50. The June total to participating doctors was 4,601 claims in the amount of $176,052.

Minnesota Blue Shield was among the seven plans adding more than 50,000 new members during the first three months of 1950 and have the second greatest increase in percentage of population enrolled. By May 31, an additional 30,774 Minnesotans had enrolled in Blue Shield making a net growth of 85,499 new subscribers in 1950 and a total enrollment of 346,000 as of May 31, 1950. The 69 member Blue Shield Medical Care Plans throughout the country reported a net growth of 975,872 new members bringing the total membership to 13,276,597; the ten non-member plans reported a net gross of 178,157 new members and a total membership of 2,106,213 making a combined membership of 15,382,810 in the 79 Medical Care Plans as of March 31, 1950.

In checking the payment during June of 1950, the bulk of payments were for cases initiated during May; however, the records still show a considerable number of cases outstanding from the last half of 1949 and also the first quarter of 1950. The Blue Shield office attempts to contact the doctors on these old unfinished cases; however, it would expedite the payment of all such cases if each doctor's office would submit a report on any and all outstanding Blue Shield claims. In so far as possible, the Blue Shield office would like to have all Blue Shield cases reported within thirty days after service is initiated. The cooperation of the doctor in sending Medical Service Report forms to this office at the earliest possible opportunity would assist in attaining this objective.

The Blue Shield office receives an ever-increasing number of calls from patients who are not quite clear as to whether or not the payment by Blue Shield has been deducted from the statement which the doctor sends to his patient. It is suggested that in so far as possible all monthly statements show the net amount payable less a credit for the Blue Shield allowance. This minor bookkeeping detail will eliminate many questions which I am sure the doctor's office receives and also give the Blue Shield subscriber a better idea as to the value of his Blue Shield on each doctor bill.

Enrollment of participating doctors with Minnesota Blue Shield totals 2,660 as of the end of June. The Minnesota Blue Shield is still attempting to attain as complete participation of the doctors with the Medical Service Plan as is possible. Any of you who have not as yet enrolled with this Voluntary Medical Care Plan are requested to do so at your earliest opportunity.

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

CLINICAL APPLICATIONS OF SUGGESTION AND HYPNOSIS. William T. Heron, M.A., Ph.D. Professor of Psychology, University of Minnesota, Minneapolis. 116 pages. Price, $3.00, cloth. Springfield, Illinois: Charles C Thomas, 1950.

PRACTICAL PHYSIOLOGICAL CHEMISTRY—Twelfth Edition. By Philip B. Hawk, Ph.D., President, and Bernard L. Oser, Ph.D., Director, Food Research Laboratories, Inc., New York; and William H. Summerson, Ph.D., Associate Professor of Biochemistry, Cornell University Medical College, New York. 1323 pages. Illustrated. Price $10.00. Philadelphia: The Bakiston Company, 1947.

When an average person tries to review a book on Physiological Chemistry, he must expect to give only a general idea of the usefulness of such a book to his readers. The detailed material presented in this book is styled just as in the previous editions. Some of the newer advances in medicine are included in the material presented. Probably the newest, discussion of the isotopes as used in research when elements are tagged to determine their physiologic life in the body.

The chapter dealing with vitamins and deficiency diseases is especially good and I would suggest that it be given careful attention.

A particularly valuable discussion is that dealing with the experiments on steroid hormones.

The latter chapters deal with antibiotics which also indicates the current thought that is carried throughout the book. In general, I would say that this twelfth edition is a definite improvement over the previous ones and should be in every medical library.

Joseph M. Ryan, M.D.

* * *

BREAST DEFORMITIES AND THEIR REPAIR. By Jacques W. Maliniac, M.D., Clinical Professor of Plastic Reparative Surgery and Associate Attending Plastic Reparative Surgeon, New York Polyclinic Medical School and Hospital, New York City; Attending Plastic Surgeon, Sydenham Hospital; Diplomate, American Board of Plastic Surgery. 193 pages. Illus. Price, $10.00. New York: Grune & Stratton, 1950.

Written with the purpose of presenting a complete and accurate account of the present status of mammaplastic surgery, this monograph should go far towards a better understanding of the problems associated with breast deformities and to encourage their repair. In a field understood well by only a few specialists in plastic surgery, it will be an invaluable reference for those encountering these problems in every day practice.

The author has made an exhaustive study of the historical backgrounds of mammaplasty, the misconceptions as well as facts of breast anatomy and blood supply, the essential elements of repair of deformities, and the numerous procedures designed to correct them. Not only are his own techniques presented in detail but also those of other surgeons past and present who have contributed to this interesting field. Numerous detailed drawings and convincing photographs supplement the text.

This book deserves a place on the shelves of all reference libraries as well as those who attempt the surgical treatment of these deformities.

Edward W. Sickels

* * *

AMUSING QUOTATIONS FOR DOCTORS AND PATIENTS. Edited by Noah D. Fabricant, M.D. 149 pages. Price $3.00. New York: Grune and Startton, Inc., 1950.

As its title indicates, this book is a collection of quotations about virtually every subject that is remotely related to medicine. The subjects run from Accidents to Youth, and include such diverse topics as Buttocks, Fees, Measles, Nurses, and Snoring. Though many of the quotations are bitter, cleverly worded attacks on the practice of medicine, most physicians should derive a

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large number of smiles and chuckles while thumbing through the book. The contents of this volume would probably be most useful to physicians who do a considerable amount of public speaking.

A few samples will illustrate, better than any review, what the book is like:

Mark Twain on the Gastrointestinal Tract: "Only presidents, editors, and people with tapeworms have the right to use the editorial 'we.'"

Henrik Ibsen on Antivisisection: "It is inexcusable for scientists to torture animals; let them make their experiments on journalists and politicians."

Ambrose Bierce on Diagnosis: "A physician's forecast of disease by the patient's pulse and purse."

George Bernard Shaw on Experts: "No man can be a pure specialist without being in the strict sense an idiot."

William Osler on the Art of Medicine:`"Look wise, say nothing, and grunt."

M. A. Perlstein on Pediatricians: "Pediatricians eat because children don't."

Morris Fishbein on Tobacco: "He is an expert surgeon, brilliant pathologist, and an uncanny diagnostician, but he is somewhat rusty on advanced cigarette testimonials."

—J.H.L.

THE MERCK MANUAL OF DIAGNOSIS AND THERAPY: A SOURCE OF READY REFERENCE FOR THE PHYSICIAN. 8th ed. 1592 pages. Regular edition, $4.50: Thumb-Index edition, $5.00. Rahway, N. J.: Merck & Co.; Inc., 1950.

Ten years have elapsed since a new edition of the *Merck Manual* has appeared; and, now, following extensive preparation, the eighth or Golden Anniversary, edition has been published.

The Manual needs no introduction to those who have been in practice for some time; but to the newcomer in the practice of medicine a few words of explanation may be in order. The Manual is a convenient handbook of diagnosis and treatment of a multitude of conditions in all branches of medicine and surgery.

Each disorder is briefly defined, and then follows a concise discussion of its etiology, incidence, pathology, symptoms and signs, diagnosis, prognosis and treatment. At the end of each section into which the chapters are grouped are the prescriptions most commonly used in the disorders discussed in that section.

For example, examine the section on the Ear, Nose and Throat. The material is intended primarily for the general practitioner and is a helpful aid regarding the most common ear, nose and throat conditions. In this section is presented, first, the frequent diseases of the external ear, namely, furunculosies, otomycosis, cerumen, foreign bodies, trauma, herpes zoster, impetigo contagiosa, and tumors; then, of the middle ear diseases, such as myringitis, eustachian salpingitis, otitis media and mastoiditis; and of the inner ear, including labryinthine disease and otosclerosis. Tinnitus and deafness are dealt with as far as time and space will permit.

The commonest disorders of the external nose are summarized in one paragraph with suitable cross references to other pages. Rhinosclerma is the only condition here described. As to the internal nose, conditions of the septum, i.e., deviation, ulcer and perforation, are dealt with. Rhinitis (acute, allergic, chronic and atrophic) and polyps complete the discussion on nasal passages. The paranasal sinuses with their acute and chronic disturbances are handled adequately. Nasal trauma, fractures and foreign bodies are mentioned; and epitaxis is given ample space.

Pharyngeal diseases, including tonsillitis, peritonsillar abscess, hypertrophied adenoids, acute and chronic pharyngitis, are next in order. Then, in logical sequence, follows laryngeal problems, i.e. acute and chronic laryngitis, tuberculous and luetic laryngitis and, also, the general complaint of hoarseness. Last but not least, there is a full list of common useful prescriptions for ear, nose and throat problems.

Some one hundred pages of the Manual are devoted to common procedures and routines and to such useful bits of information as the essential contents of the physician's bag, a list of alternative proprietaries, and conversion formulas. A good index facilitates the use of this handy, ready reference tool.

E. L. Bauer, M.D.

AMA DIRECTORY—Eighteenth Edition. A Register of Physicians. Edited by Frank V. Cargill. 2913 pages. Price $25.00. Chicago: American Medical Association, 1950.

The eighteenth edition of the Directory of the American Medical Association is now available after three years of work. This is the first edition since 1942. The

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long interval was caused by the war and printing difficulties.

The new directory contains 2,913 pages, and lists information on 219,677 physicians in the United States, its dependencies, and Canada. It also lists American graduates and licentiates located temporarily abroad. Since the 1942 directory, thousands of changes of address have been made; 51,984 names have been added, and 28,242 names dropped from the book on account of death or for other reasons.

In the 1942 directory, the total number of physicians listed in the United States was 180,496; in the 1950 edition, the number is 201,277, or a gain of 20,781, an average yearly gain of 2,598 during the last eight years.

The Pacific States show the largest increase in physicians, the Atlantic and Great Lakes States a moderate incerase, and the West Central States the greatest losses. California leads in the number gained, with 16,688 physicians in 1950 as compared with 12,365 in 1942, a gain of 4,303. New York state shows a gain of 2,284, Texas a gain of 772, Pennsylvania 704, Florida 634 and Massachusetts 603.

For the first time, postal zone numbers appear after the residence and office addresses of physicians in cities where they are required by the Post Office Department. A new feature is the inclusion of data on the World Medical Association.

The directory costs $25. Orders can be placed by writing to Frank V. Cargill, Directory Department, American Medical Association, 535 North Dearborn St., Chicago 10, Illinois.

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MEDICAL ECONOMICS

(Continued from Page 818)

Liberty Termed "Perishable"

Believing that liberty far outshines security, if a choice is required, James A. Farley nevertheless believes that liberty and security are compatible. He states:

> "We have got to get rid of the fixed idea that liberty is imperishable on our continent. If the choice is given to us of liberty *or* security, we must scorn the latter with the proper contempt of free men who know that liberty *and* security are not incompatible in the lives of honest men."

Poets, too, have carved verses dedicated to stopping the spoilage of this perishable, commodity, human liberty. For instance, the words of Walt Whitman:

"To the States or any one of them, or any city of
the States, *Resist much, obey little.*
"Once unquestioning obedience, once fully enslaved,
"Once fully enslaved, no nation, state or city of this
earth ever afterward resumes its liberty."

MINNESOTA ACADEMY OF MEDICINE

TREATMENT OF FRACTURES

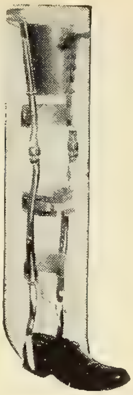
(Continued from Page 821)

were in traction with fractures of the femur. I had one trained assistant, the other men who were helping me were gynecologists, obstetricians and pediatricians. Naturally we wished that we had the Kuntchner nails at that time because the treatment and responsibility of 187 fracture cases in traction was rather tremendous. Dr. Cole has covered this subject very thoroughly and evaluated it very properly. It is a procedure which has merit and I am very glad that he ended his presentation with one or two complications. I have seen many patients and I have seen many complications. I have seen osteomyelitis, soft tissue infection, non-union, delayed union, broken nails and nails protruding from the wound because the surgeon wasn't able to drive it within the distal fragment or remove it at the time of operation. I mention these many complications not to condemn the procedure because I agree that it is a valuable procedure; I mention them merely to emphasize the importance of fracture training. When there are emergencies and great numbers of fractures, we should be prepared with fracture teams, so that they can be treated with internal fixation without complications so that they will not require many months of bed treatment. Many phases of this problem are worthy of discussion but, because of the time, I will not continue.

Dr. Verne C. Waite, of Honolulu, Hawaii, then gave a talk (by invitation) on "General Surgical Practice in Hawaii."

The meeting was adjourned.

Wallace P. Ritchie, M.D., *Secretary*



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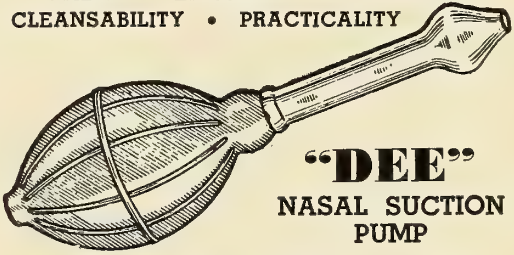

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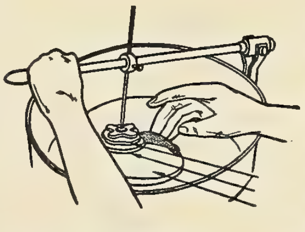

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Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

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Contents of Minnesota Medicine copyrighted by Minnesota State Medical Association, 1950

Entered at the Post Office in Saint Paul as second class mail matter. Accepted for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized July 13, 1918.

MINNESOTA MEDICINE

OFFICIAL JOURNAL OF THE MINNESOTA STATE MEDICAL ASSOCIATION

Published by the Association under the direction of its Editing and Publishing Committee

Office of Minnesota State Medical Association,
493 Lowry Medical Arts Bldg., Saint Paul 2, Minnesota.

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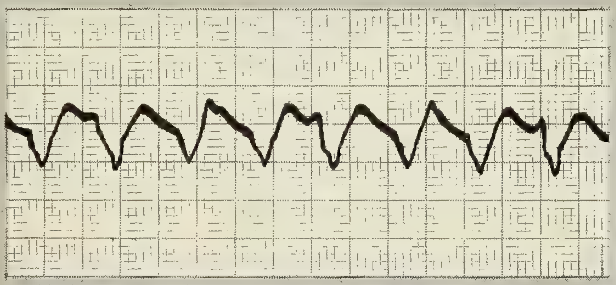

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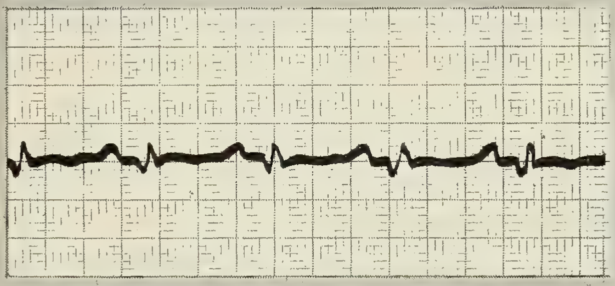

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Ready-to-feed S-M-A® is patterned after human milk. Quantitatively and qualitatively, its content of protein, fats, carbohydrates, essential minerals and vitamins is designed to provide a complete nutritional base for sturdy growth. Many years of clinical experience proves S-M-A is good for all babies.

S-M-A Concentrated Liquid—cans of 14.7 fl. oz.

S-M-A Powder—1 lb. cans.

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For Safe Symptomatic Relief During the "*Late*" Hay Fever Season

There are good reasons why many allergists consider "late" hay fever a more serious threat than the Spring and Summer types of seasonal allergy: ragweed pollens cause a greater incidence of hay fever than all other pollens combined; more pollens are in the air during the ragweed season than at any other time; and since "the United States is the favorite habitat of ragweed, it has the dubious distinction of harboring more hay fever victims than all the rest of the world together."[1]

Fortunately, more and more patients each year are enjoying the therapeutic benefits of Neo-Antergan® Maleate. Because of its safe and strikingly effective action in relieving the distressing symptoms of allergy, Neo-Antergan has become a favorite antihistaminic with physicians and patients—*in every season of the year.*

Neo-Antergan is advertised exclusively to the medical profession. Your patients can secure its benefits *only through your prescription.*

Neo-Antergan Maleate is stocked by your local pharmacy in 25 mg. and 50 mg. tablets. Complete information concerning its clinical use will be sent on request.

[1] Cooke, R. A.: *Allergy in Theory and Practice.* Philadelphia: W. B. Saunders Company, 1947, p. 186

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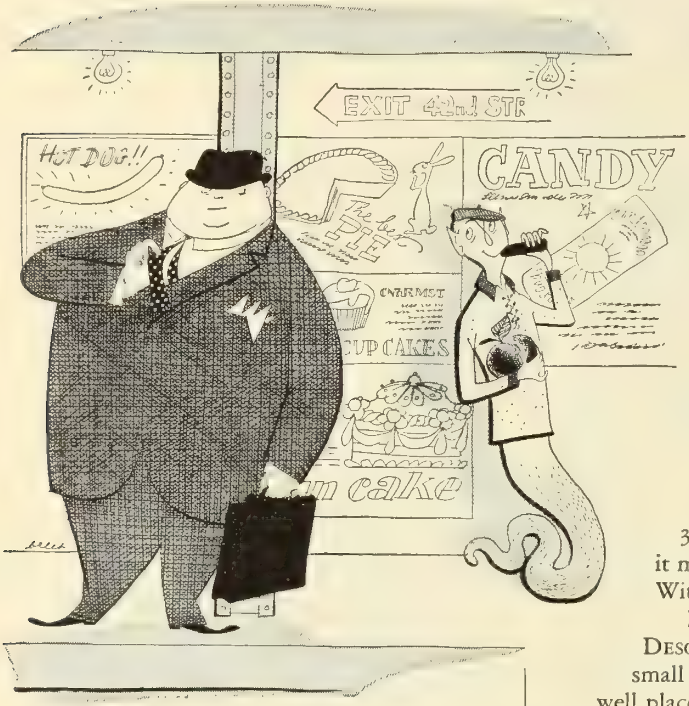
MALEATE

(Brand of Pyranisamine Maleate)

(N-*p*-methoxybenzyl-N′,N′-dimethyl-N-*a*-pyridylethylenediamine maleate)

COUNCIL ACCEPTED

When all signs point to *forbidden* foods...



● When he's hungry—when his gourmand's soul begins to rebel against the dull, plodding pace of the reducing diet—this is when physician and patient alike welcome a relatively safe, effective central stimulant. ● With Desoxyn Hydrochloride, small doses are sufficient to produce the desired cerebral effect—anorexia, elevation of mood and desire for activity—with relative freedom from undesirable side-effects. Smaller dosage is possible because, weight for weight, Desoxyn is more potent than other sympathomimetic amines. Other advantages are Desoxyn's faster action, longer effect. One 2.5-mg. tablet before breakfast and another about an hour before lunch are usually sufficient. A third tablet may be taken about 3:30 in the afternoon, but after 4 p.m. it may cause insomnia in some persons. With small oral doses, no pressor effect has been observed. ● Why not give Desoxyn a trial? Unless contraindicated, small doses are harmless. And small doses well placed may mean the difference between success and failure in the outcome of the reducing regimen. **Abbott**

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ELIXIR
20 mg. per fluidounce
(2.5 mg. per fluidrachm)

AMPOULES
20 mg. per cc.

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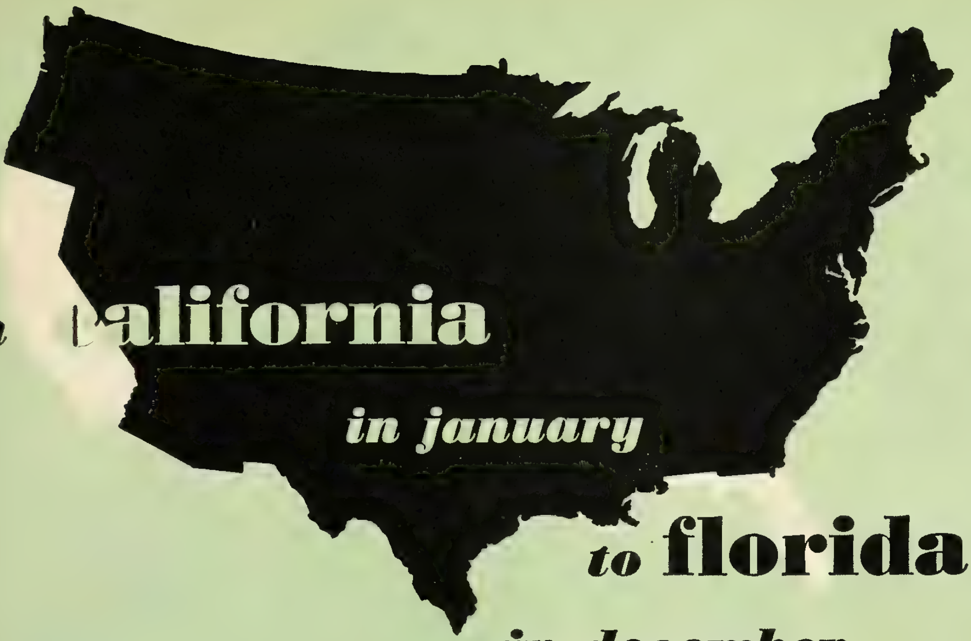
DESOXYN®

hydrochloride

(METHAMPHETAMINE HYDROCHLORIDE, ABBOTT)



om alifornia *in january* *to* florida *in december*

ollens may invade the air as early as January in alifornia and last through December in Florida.

vherever hay fever may be

nd whatever the pollens, a valued measure of symptomatic elief can be expected in most patients with

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(brand of prophenpyridamine)

RIMETON,® one of the first of the more tent antihistaminic compounds, ntinues to be, as always, a reliable eans of making the hay fever sufferer ore comfortable. Because the cidence of side effects is relatively w, it is rarely necessary to scontinue TRIMETON.

Packaging: TRIMETON Tablets (prophenpyridamine) 25 mg. Bottles of 100 and 1000 scored tablets. TRIMETON Maleate Elixir containing 7.5 mg. per teaspoonful is available in bottles of 4 and 16 oz. Patients taking TRIMETON should be informed of the nature of side effects common to all antihistamines.

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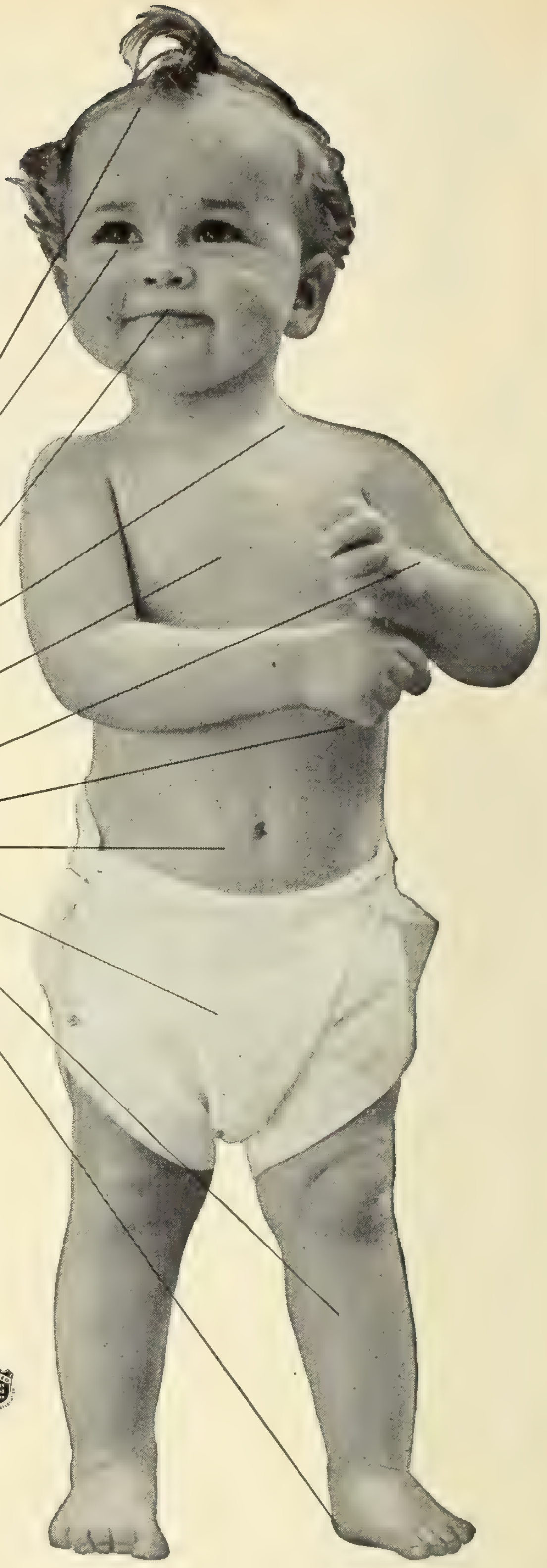
from *head* to *toe*

Cerevim-fed children showed greater clinical improvement, in the following nutrition-influenced categories, than children fed on ordinary unfortified cereal or no cereal at all:[1]



hair lustre
recession of corneal invasion
retardation of cavities
condition of gums
condition of teeth
skin color
skeletal maturity
skeletal mineralization
*blood plasma vitamin A increase
*blood plasma vitamin C increase
subcutaneous tissues
dermatologic state
urinary riboflavin output
musculature
plantar contact

Here's why: Cerevim is not just a cereal.

Much more: Cerevim provides *8 natural foods:* whole wheat meal, oatmeal, milk protein, wheat germ, corn meal, barley, Brewers' dried yeast and malt – PLUS added *vitamins* and *minerals.*

CEREVIM

CEREALS + VITAMINS + MINERALS

1. "A Study of Enriched Cereal in Child Feeding" Urbach, C.; Mack, P. B., and Stokes, Jr., J: Pediatrics 1:70, 1948.

*Cerevim contains neither vitamin A nor C but possibly exercises an A-and-C sparing effect attributed to its high content of protein and major B vitamins.

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FINEST SELECTION
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PHILIP MORRIS

NOW PROOF . . . in an instant, Doctor,
PHILIP MORRIS are LESS IRRITATING

Just Make This Simple Test:

1 . . . light up a **PHILIP MORRIS**
Take a puff—DON'T INHALE. Just s-l-o-w-l-y let the smoke come through your nose. Easy, isn't it? AND NOW . . .

2 . . . light up your present brand
DON'T INHALE. Just take a puff and s-l-o-w-l-y let the smoke come through your nose. Notice that bite, that sting? Quite a difference from PHILIP MORRIS!

YES, your own *personal experience* confirms the results of the clinical and laboratory tests.* With proof so conclusive, would it not be good practice to suggest PHILIP MORRIS to your patients who smoke?

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Philip Morris & Co., Ltd., Inc.
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**Proc. Soc. Exp. Biol. and Med., 1934, 32, 241-245; N. Y. State Journ. Med., Vol. 35, 6-1-35, No. 11, 590-592; Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154; Laryngoscope, Jan. 1937, Vol. XLVII, No. 1, 58-60*

A Real American Breakfast

That a nutritious breakfast providing generous amounts of high quality protein prevents late morning hypoglycemia has been amply demonstrated. As shown by Thorn and co-workers,[1] and later confirmed by Orent-Keiles,[2] ". . . breakfast high in protein and low in fat and carbohydrate was followed by an improved sense of well-being and no symptoms of hypoglycemia."

Meat for breakfast—ham, sausage, bacon, breakfast steaks—is an appetizing means of increasing the protein content of the morning meal. Its biologically complete protein contains all essential amino acids, and serves well in complementing less complete proteins from other sources. Furthermore, muscle meat is an outstanding source of B complex vitamins and of iron.

The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

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(1) Thorn, G.W.; Quinby, J.T., and Marshall, C., Jr., Ann. Int. Med. 18:913 (June) 1943.
(2) Orent-Keiles, E., and Hallman, L. F., Circular No. 827, United States Department of Agriculture, Bureau of Human Nutrition and Home Economics, Agricultural Research Administration, Dec., 1949.

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- Height quickly and easily adjustable—58" width
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- Permafit drawers—no swelling, warping or binding. Turn of key unlocks all drawers immediately
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P&H desks are also available in conference, secretarial, typist and interviewer models with matching tables and other accessories.

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upholstered

OFFICE CHAIRS

- Spring seat construction
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- Width between arms—19"
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A COMBINATION OF ATTRACTIVE DESIGN, COMFORT AND DURABILITY

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not "food allergy"... but "casein allergy"

Inability to tolerate milk casein is one of the most frequent causes of allergy in infants. Casein allergy, as manifested by such symptoms as gastrointestinal upsets and atopic eczema, may follow the ingestion of any animal milk. In true casein allergy, all animal milks, including goat's milk, must be avoided.

In such cases Mull-Soy provides the answer. Mull-Soy compares closely with cow's milk in nutritional values of protein, fat, carbohydrate, and minerals.

Mull-Soy is a liquid, pleasant-tasting, homogenized, stable (vacuum packed) food, high in unsaturated fatty acids.
At drugstores in 15½ fluidounce tins

For hypoallergenic diets in infants and adults look to

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The Borden Company
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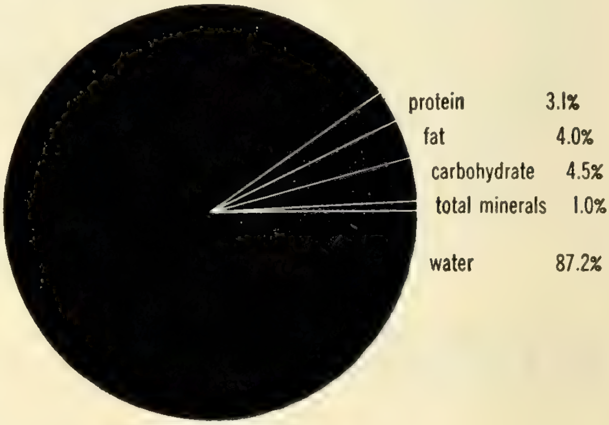

Mull-Soy diluted with equal volume of water

20 calories per fl. oz.

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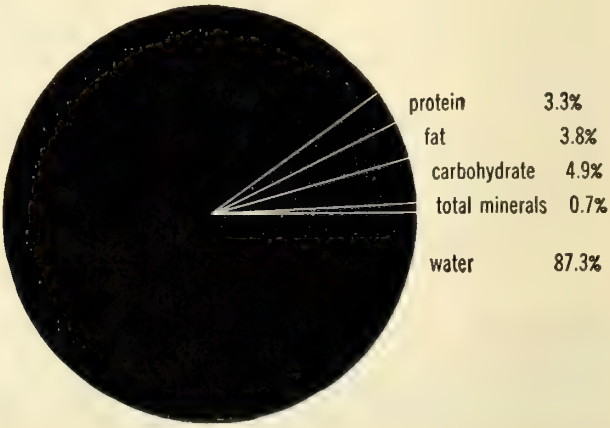

Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 33 SEPTEMBER, 1950 No. 9

MEDICAL PRACTICE ON LEVEL FOUR

F. J. ELIAS, M.D.
Duluth, Minnesota

THE ninety-seventh annual meeting of the Minnesota State Medical Association is a significant occasion in significant times—but it is obvious now to all of us that history has not stopped long enough to allow us to catch our breath.

We are on level four of our cultural development and, in many ways, we are unable to cope with the discoveries that led us to levels two and three.

"What is level four?" you may ask. "How did we get there and where is it?"

Customarily we reckon time in years or centuries. We may stop and reflect that we are now halfway through the twentieth century. But the students of cultural growth tell us that we have developed by stages . . . according to the time it has taken us to discover that we could turn the sun and the fossilized products of the earth and, finally, matter, mysterious, formulae-ridden matter, into energy for use in supplying our needs.

Our struggles to capture free energy have brought us to level four, the here and now. It's the mutable, shifting, disconcerting, challenging present that alternately fills us with optimism and despair. It is a state of mind and a state of culture. It is—and not incidentally—the level on which we are trying to keep our discoveries from destroying us.

For it is inevitably true that our possibilities have outdistanced our needs, and our knowledge is too far ahead of our reason.

Medical science has established its own peaks and plateaus on this level four of atomic living. We know that the foundations for medical advances were laid, in many cases, before the first atomic explosion catapulted us onto level four. But they were waiting to come into fruition. Now we have the dual prospect of longer and longer life or immediate mass suicide. Will the life-lengthening discoveries of science be cancelled out by the life-extinguishing discoveries of science? Or will man's greater maturity, that longer life is bringing, be able to shift the direction of our discoveries into channels of greater, more productive and pleasanter living?

Medicine must assume its responsibilities in this crisis of scientific, sociological and economic development, if the outcome is to be a fortunate one.

And to gauge those responsibilities, we must look back, across the years, to a time when life was simpler because so many of its consequences could safely be termed "inevitable," and so many of its problems, "insoluble."

Our general knowledge and, more especially, our scientific knowledge have changed our lives more in the past twenty years than in the previous fifty—more in that fifty years than in the previous two hundred. We may then, for all practical purposes, take the first half of the twentieth century as our quantity X.

In that time we have reaped the rewards of the germ theory of disease, for, with chemotherapy and public sanitation, we have all but mastered many disease micro-organisms—as significant a development as stone age man's successful battle with external organisms—the animals that preyed upon him until, with superior intelligence, he outwitted them.

Presidential address given at the annual banquet of the Minnesota State Medical Association, Duluth, Minnesota, June 13, 1950.

The doctor of yesterday, who hurried to his patients with about equal amounts of sympathy and science, was welcomed by the anxious families, although they knew his limitations almost as well as he knew them, himself. But he was there, a friend and confidante, who yielded with them to the inevitable, when his meager science failed.

But the doctor of today and, with greater truth, the doctor of tomorrow, is welcomed by the anxious families because he is the master of a mysterious science, a twentieth century worker of miracles who is not expected to yield, but to conquer the inevitable.

Thus, our responsibilities as doctors have become greater . . . the further we crowd back the barriers of disease and death, the further we are expected to push them. And, at the same time, more is expected of us as interpreters of this science, as leaders in the thought patterns that are emerging from scientific discoveries that constitute the very core of our civilization.

In administering the heady potion of longer living, we have incurred an obligation of helping to direct the use of these added years and to form logical answers to the questions that stand between man and a clear title to his new longevity.

Science has multiplied upon itself, like the mold of penicillin develops in a culture tube. Discovery has spawned upon discovery. One man has supplied the clue to another's experiment and that, in turn, has led to yet another development . . . as exemplified by Dr. Banning's idea for insulin, prompted by reading an article by Dr. Barron of Minneapolis—or the investigations of Whipple, which were followed by the work of Minot, Murphy and Castle and finally of Cohn, and resulted in liver extract. And now we have a further development in pernicious anemia therapy—vitamin B_{12}—which, injected in such infinitesimal amounts as one microgram daily, will cause a remission in this once-fatal disease. Fleming, followed by Florey, was, of course, responsible for penicillin, now being produced at the rate of something like four thousand billion units per month in the United States.

And scientific discoveries have generated new forms of application. By continuous and flexible interpretations of medical science, Minnesota, for instance, has cut its tuberculosis death rate from 106.4 per 100,000 in 1900 to 13.8 in 1949.

Duluth represents a striking example of progress in sanitation. In the early years it had the highest mortality rate in the cities of its class, as a result of typhoid fever. For a number of years now it has occupied a distinctive position in its freedom from this disease.

Within the span of my own life, I have observed medical science in headlong progress. I remember the ponderous static machine for the development of an unstable potential to energize a similarly unstable gas-filled x-ray tube, acquiring with these, if we were fortunate, an exposure on a glass plate comparable to that of Roentgen's. Similar in antiquity was the apparatus used in an assignment with the British Expeditionary Forces in the First World War, with equipment energized by an induction coil and, for interruptions of the current, electrodes separated in a champagne bottle! In the field of chemotherapy, the first administration of salvarsan was attended by procedure and preparation of major surgical proportions. Likewise, precisely prepared Dakin's solution was once accepted as the final answer to the control of sepsis in wounds. And there has been an ebbing of lay and medical confidence in the prevention of colds by antihistamines similar to the rejection of chlorine inhalation.

It may sound pretentious or provincial to say this, but, in Minnesota, the problems relating to science are perhaps at a high point in the nation. For here we have concentrated so deeply on their primary phases. I have recounted to you our progress in a few special fields of disease. Minnesota has distinguished itself, medically, through the endeavors of such men as Dr. Justus Ohage, who performed the first successful cholecystectomy in America; Dr. Charles Hewitt, pioneer public health worker; Dr. Edward Bockman, who introduced a new type of surgical suture . . . and . . . this is interesting . . . Dr. Hillard Holm, who performed one of the few successful operations separating Siamese twins.

I might remind you, too, of our record-breaking strides in maternal and infant health. And there begins the broad, general problem. We are giving the citizens of our state a head start in health. With low infant mortality figures, with subsequent control over communicable diseases and skilled corrective surgery, we are saving hundreds of persons who will eventually become geriatric problems.

In between, of course, there are broad areas for study and investigation. We need to turn our attention to the patient as a whole, not just as a person suffering from one or more particular maladies. As physicians, we should consider the subject of health as a whole, interesting ourselves in maintaining the individual's health as well as curing him of a disease.

And, too, there is the relatively uncharted field of body chemistry. Why does the body react so strangely to certain hormones, to emotional shocks, to the barely discernible scars of earlier illnesses? When we know, we may be in a position to add another twenty or fifty years to the average life span.

Always, concurrently with the question of "What can we do to extend life?" comes the question of "What will the added years mean?"

We have left the orderly, unalarming scientific patterns of the nineteenth century. We have ceased to regard the lighted areas of science as the only known world . . . instead we spend most of our time in the shadowy patches of near knowledge and the dark of unexplored territory. Our scientific creativity is no longer subject to the old accepted rules. Every day we make new rules for ourselves and, in so doing, we find that many times our previous thinking and experimentation fall into place and another pattern of progress is complete.

But, in the process, just as we have subjected every rule, every supposed truth to restudy, so have we abandoned our belief that progress is necessarily and automatically for the best.

Progress, we observe, is what we make of it. And nowhere is there a better example than in the development of atomic energy. This is progress, yes, but a double-edged progress that can add new dimensions to life or, wielded in reverse, will mean obliteration of all life.

Fissioning atoms are providing medical men with, among other things, such important tools as radioactive tracers, which are being put to use in the fight against cancer and are revolutionizing biology and medical research. The prospects for atomic energy . . . and for the newer explorations in hydrogen . . . are limitless, as we see them now. Or they may be strictly limited by the production of a few highly accurate, infinitely destructive bombs.

With the increased leisure afforded by mechanization and our highly complex industrial civilization, man has supposedly more time to think, to mature, to devote a larger portion of his life to the arts . . . and with the gift of twenty additional years . . . man should be approaching the most exemplary period of human history.

But can we hope for realization of this theory?

Probably not. For hasn't the machine superceded the man? Hasn't science outspaced conscience?

It would appear that our most perplexing and immediate puzzle is one of understanding. We must think our way to the formation of a philosophy sturdy enough and flexible enough to withstand the impacts of level four living.

The comprehension of the man who lives on level four does not seem adequate. He cannot understand even the relatively basic fundamentals of his own existence . . . and the prospect of lengthening life appears terrifying, instead of inviting, to him because he feels that in his later years he may be more vulnerable to the perils of an economically dependent existence.

What can we, as the practitioners and spokesmen of one scientific profession, do to help?

Our duties as physicians at this time are akin to our duties as citizens, it would seem to me.

I will not reiterate our continual responsibilities to become better doctors, to search for and retain the knowledge and skills we need to perform our scientific tasks to the best of our ability. We are inescapably aware of that necessity.

But, it is in the somewhat broader science of human relationships that our obligations sometimes fail to appear in sharp focus and personally applicable. We do not seem to keep an alert attitude in that field . . . to seize, as in medical science, upon an idea, a thought, the dawning comprehension of a truth and to build on it with our own interest and observation and experience; in short, to be as skilled in the epidemiology of sociological and political and economic diseases as we are in the epidemiology of physical disease.

I do not know why we fail so often here, but I assume that it is because we consider our lives well spent if we have given full devotion to our profession. And, while, categorically, we may divide this discipline into prevention, diagnosis and treatment, we do not realize that in the performance of this duty, we are bringing other duties upon ourselves which cannot be postponed or evaded.

First, let's not add to the mystery surrounding science. Let's explain scientific advances in simple terms to our patients. Let's help them to understand their physical selves and to have a general idea of the workings of the human body and, if they are ill, to understand why they are ill, how seriously ill, and what is being done to remedy the damage done by malfunction or micro-organisms.

Through understanding of one science, the people with whom we come in contact will be less unwilling to attempt at least a partial, outline understanding of other sciences that affect and influence their lives. With comprehension of the basic principles of all, will come a more satisfactory adjustment to environment, a firmer stand on the shifting grounds of atomic level four.

Then, we must initiate a re-evaluation of the longer life span that is unfolding for us all. Is it a valuable gift or a Pandora's box that will loose great economic and social evils in the world?

Its potentialities are all for good. Coupled with the expanding educational system—which has enabled 40 per cent of our children to go through high school and 7 per cent through college—longer life should mean better, happier life—more expressive and more complete.

We're being better trained and educated, mechanized industry gives us more leisure and more luxuries for our leisure, and we have a longer time in which to enjoy the good things of the world. Why then, has the assurance of longer life made us so uncertain of our abilities to utilize it?

It is partly because the economically self-sufficient individual has all but disappeared from twentieth century, level four America. We are dependent upon each other, and yet we don't know how to be profitably dependent upon each other.

We are looking for an impersonal leaning post —like the government—fearful of trusting ourselves or each other.

This, then, is the crucial decision point we reach in mid-twentieth century. As physicians, we can and must help to turn the tide of public thinking.

Nor can we rely on the easy, status quo attitude of "peace or plenty or tolerance in *our* time." We must face our problems now . . . for the heritage we pass on should not include the fears and distrust and political shiftings of today.

These are the causes—understanding, and the development of a self-reliant and mutually helpful philosophy—to which we must assign ourselves. We must be just as fanatical about good as the Leninists are fanatical about evil. We must, to paraphrase Lenin himself, find within our ranks people who will devote not just their spare evenings, but the whole of their lives, to the advancement of the principles we have chosen to abide by.

COMPOUND F SYNTHESIZED

A synthesized adrenal hormone chemically similar to cortisone and known as Compound F is proving effective against rheumatoid arthritis, researchers of the Mayo Clinic, Rochester, Minnesota, report.

Announcement of the synthesis of Compound F was made recently by a pharmaceutical company (Upjohn Company, Kalamazoo, Mich.) The company did not say what this synthesis will mean in terms of production, other than to emphasize that the amount of Compound F available does not allow distribution for other than limited clinical testing at the present time.

The report of trial of Compound F against rheumatoid arthritis was made by Dr. Howard F. Polley (one of the group from the Mayo Clinic who originally reported the effects of cortisone and ACTH against the disease) and Harold L. Mason, Ph.D., in the (August 26) *Journal of the American Medical Association.*

"Significant antirheumatic activity was possessed by 17-hydroxycorticosterone (Compound F)," they say. "Minor structural alteration from cortisone occurs in 17-hydroxycorticosterone. Our supply in the last year has permitted trial on one patient, a woman forty-nine years old, whose severe rheumatoid arthritis had been present three years and who had responded well to cortisone and to ACTH.

SURGICAL TREATMENT OF MITRAL HEART DISEASE

IVAN D. BARONOFSKY, M.D.
Minneapolis, Minnesota
and
JOHN F. BRIGGS, M.D.
Saint Paul, Minnesota

THE NEED for a safe technical approach to the surgical treatment of chronic valvular disease of the heart has been recognized for many years. The idea is not new, as the surgical treatment of mitral stenosis was first suggested by Brunton[3] in 1902. In 1912, Tuffier[22] attempted actual dilatation of a stenosed aortic valve. In 1929, Cutler and Beck[4] summarized their personal experiences in the surgical treatment of 8 cases of mitral stenosis, the mortality for the group being 83 per cent. Since that time much progress has been made in the field of thoracic surgery. These advances, combined with recent developments in chemotherapy and the sound present-day concept of the prevention and treatment of shock minimize many of the former hazards, and should permit reapplication of certain methods with significant reduction of mortality.

Before entering into any discussion of a new surgical procedure or a new surgical approach to an old procedure, one must justify somewhat any increased mortality in the beginning. It is to be expected that as one operates in or around the heart, there will be a mortality. As a matter of fact Elliot Cutler[5] stated that though the majority of his patients died following operation, it was his feeling that the experiences gained would be of great benefit in future reduction of mortality. It may be recalled that the mortality figures in early operations on the stomach now considered relatively simple, as collected by Dr. W. W. Keen[12] for his Cartwright lectures, were quite high. Following the first twenty-eight gastrostomies collected in 1875, all the patients died, and in a series of thirty-five gastroenterostomies in 1885, the operative mortality was 65.7 per cent. Moreover, it took years for these figures to improve. In 1884, the mortality for gastrostomy was still 81.6 per cent.

It is not our intention at this time to present an extensive collected series of personal cases in which operation was performed for mitral stenosis. Indeed, it is our intention as a combined team of surgeons and internists to present some of the material that has been accumulating in the literature. It is our main intention to present some of the indications for operation, the methods used and some of the results.

Without question, there is no necessity of stating that the clinical evaluation of any patient by an experienced cardiologist is a must. In the past years, medical management of mitral heart disease has become a clinical laboratory picture, and I am sure all of you know the methods that are used currently. There are certain basic questions that must be answered before operation is indicated:

1. Does the patient have evidence of active heart infection? The report of Hench and his coworkers on compound E may indicate that perhaps in active infections the treatment of choice is compound E.

2. Is the deformity of such a nature that the patient can survive a normal span of life with moderate activity? Perhaps catheterization studies of the heart, and lung biopsies may indicate the value of an operative procedure. In co-operation with Dr. John LaBree at the University we have been attempting to correlate intracardiac pressure studies with lung biopsies. Will a surgical procedure which permits more blood to reach the left ventricle, be of benefit to patients in whom arteriosclerosis of the lungs is already present, is a question that still remains unanswered. Our studies are still too few to warrant any definite conclusions on this point.

3. When shall a patient be subjected to operation, if at all? Shall we wait until the patient is a poor operative risk, when he is in failure, or when severe hemoptysis and dyspnea are present?

4. Is mitral regurgitation worse than a mitral stenosis? Is it a gradual regurgitation that is important, or are we to believe that regurgitation is an unimportant factor completely? Is merely the relief of pressure in the left auricle the important thing, so that an interatrial septal defect would suffice?

All these questions still remain to be answered. Were we to have a tool by which mitral stenosis

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From the Departments of Surgery and Internal Medicine The University of Minnesota and The Ancker Hospital

Read in symposium on Diseases of the Chest, sponsored by the Minnesota Chapter of the American College of Chest Physicians at the annual meeting of the Minnesota State Medical Association, Duluth, Minnesota, June 12, 1950.

could be produced consistently in an experimental animal, we are sure that most of the questions could be answered on a physiologic basis. All the procedures that will be described in the future paragraphs would then be subjected to critical evaluation. In the meantime, until a method is obtained, human experience will be our sole method of evaluation.

Surgical Considerations

Mitral Valve

The methods that we have been using in the approach of the problems of mitral stenosis seem to take one of the following three courses:

1. Methods of direct surgical attack upon the stenotic valve.
2. Methods of relieving the associated pulmonary hypertension.
3. Methods of by-passing the stenotic mitral valve.

Methods of Direct Surgical Attack Upon the Stenotic Valve

1. *Simple incision of a valve cusp.*—Cutler, Levine and Beck[4] first attempted this procedure in 1924. Their results were not encouraging. However, it must be stated that we have since made some advances in pre- and postoperative care and, perhaps, if nothing else, these authors have given us some valuable experience that is being used today. Anatomically, the stenosed mitral valve can be reached by a suitable instrument by way of either the left ventricle or left auricle. It is not yet entirely clear as to which is the better approach.

2. *Excision of a portion of the mitral ring.*—Cutler, Levine and Beck[5] also reported some cases in which a piece of the fused valves was removed, since it was felt that the only hope in mitral stenosis was to replace it by a regurgitant type of lesion. Results seem to indicate that although there has been some objection to this procedure, there are indications for it. Smithy,[18] this year, reported seven cases subjected to eight operations with two deaths, a mortality of 28.6 per cent. He has approached the valve and resected a portion by means of the ventricle and the auricle. His preference at the time the paper was published was by the transventricular method. It is interesting to remark that one of the successful results is a technician now working in a Saint Paul Hospital. In a recent conversation, she stated that she would be willing to convince anybody of its value to her. Time will provide the answer as to how well these patients will carry on with their increased, though limited, regurgitation. It must be remembered that Powers,[15] in an attempt to produce a mitral stenosis in dogs and then resect the stenosed valves, stated that in all probability, a sudden regurgitation is very harmful. He suggested that a much better approach to the problem would be had if a gradual increase in the amount of reflux of blood into the left auricle were obtained.

3. *Digital dilatation of the stenotic orifice.*—Souttar[20] in 1925 first performed this procedure with success in one case. Recently Bailey[6] and his co-workers have performed three such dilatations with one success. Death within three days in one of the cases was due to clotting at the torn commissures.

4. *Valvuloplasty.*—Harken[9] has coined this term for a method which involves the resection of portions of the valve ring at the commissures. It is his feeling and that of many others, that the antero-lateral and the postero-medial commissures should be resected. A selective type of valvular resection is thus done, and regurgitation of blood from the aorta into the ventricle is thus prevented.

5. *Commissurotomy.*—Bailey[6] and his co-workers have recently suggested that, instead of resection of a piece of the fused valves, a slit into the antero-lateral commissure, and at times into the postero-medial commissure, be done. This is done under direct digital control, a procedure which he has called commissurotomy. Ideally, surgical intervention should restore perfect valvular action; then the correction of obstruction in the light of the associated degree of insufficiency that is immediately produced would not come under consideration. He has recently reported thirty patients with six deaths. In twenty-one, the results have been satisfactory to date, both subjectively and objectively as measured by cardiac catheterization studies.

In summary, therefore, of all the procedures used in direct attack on the mitral valve it would seem that either resection or cutting of the commissures is a valuable procedure. If surgery is considered, either one of these two methods should be contemplated.

Methods of Relieving the Associated Pulmonary Hypertension

The interesting observation first reported by Lutembacher, that patients with mitral stenosis who have a co-existing patent interatrial septal defect, do not usually suffer from paroxysms or pulmonary edema, has led to the suggestion that such a defect might be created artificially in cases of mitral stenosis. Harken has created a defect in humans by means of a specially devised valvulotome. Blalock[2] has attempted this procedure, and used it in cases of transposition of the great vessels. One of us (I.D.B.) experimentally used the approach of anastomosing the auricular appendages, either directly or by means of a vein graft.[17] By this method the interatrial defect, which is in effect produced, can be made under direct vision and can be broken down immediately, should the condition of the patient warrant it.

Sweet[19] has used still another approach. He has anastomosed the superior segment branch of the inferior pulmonary vein to the azygos vein, thus creating a communication between the systemic and pulmonary circulations. Whereas the pulmonic circulation is a closed circuit, the systemic venous return is not; thus the pressure within the left auricle can be distributed over a greater area.

Methods of By-Passing the Stenotic Mitral Valve

In 1913, Jeger[11] thought that a valved vein might be grafted to serve as an anastomosis between the pulmonary vein and the left ventricle and thus adequately side-tracking the stenotic mitral valve. Recently Gross's efforts at using grafts of vessels may in the future be an answer to this problem.[8] Rappaport[16] has recently also implanted the tip of the auricular appendage into the ventricle. By this method the stenotic valve will be by-passed.

In summary, it might be said that methods of by-passing the stenotic valve are still very much in the experimental stage and should be discarded as a procedure in humans.

Indications and Selection of Patients

Indications that have been put into the literature are at this time more verbal than salted with experience. We are not saying this in a critical way, but rather to suggest that perhaps more operative procedures should be done in an effort to obtain the true criteria for operation. Harken[9] suggests a preliminary classification of patients into three groups:

Group A—This group includes patients with a low resting cardiac output which is unchanged or even decreased on exercise and with an elevated pulmonary-artery pressure. Signs of right ventricular failure may appear in addition to the pulmonary symptoms. For such patients, the operation of "valvuloplasty" may be helpful since the available evidence indicates that mitral obstruction is of major importance in this clinical condition.

Group B—In this group are patients whose resting cardiac output is within normal limits and usually increases with exercise. In spite of the adequate cardiac output, they often have as severe pulmonary symptoms as those in Group A, and the pulmonary-artery pressure is also elevated. The pathophysiologic mechanism in these cases may be a predominance of mitral regurgitation over the element of stenosis, or it may be that a high left auricular pressure maintains flow through narrowed mitral orifices to an adequate level. Secondary organic pulmonary vascular changes may also occur as an important element in producing the pulmonary symptoms. These patients may be benefited by the production of an artificial interatrial septal defect, which will decompress the left auricle and the pulmonary venous hypertension, especially at high peaks during periods of strain. This operation is probably not suitable for patients who have had right ventricular failure because of the added burden produced in the right ventricle by the recirculation of blood through this chamber and the pulmonary circuit. Such an operation may be contraindicated for patients in Group A, in whom too great a proportion of blood may be diverted through the shunt, and with decreased left pressure, blood flow through the stenotic mitral orifice would be reduced still further to a level incompatible with life.

Group C—This category includes patients whose incapacitating symptoms, particularly attacks of pulmonary edema, are associated with rapid heart action that cannot be controlled by medical measures. The cardiac output may be normal or low, and the pulmonary-artery pressure elevated. The patients are not deemed suitable candidates for either of the operations mentioned above because of the extent and severity of their disease. The occasional patient with mitral stenosis who has attacks of severe chest pain, especially "hypercyanotic angina," may also fall into this group. For these patients, a palliative procedure may be the removal of the cardiac sympathetic accelerator and afferent nerves.

Glover and Bailey[6] classify the indications as follows:

1. Most favorable group:
   - (a) Excessive fatigability.
     Increasing exertional dyspnea.
   - (b) No rheumatic activity.
     Normal sinus rhythm.
     Lesion predominantly stenosis.
     Evidence of significantly increased pulmonary hypertension.
2. Less favorable group: The above plus
   - (a) Recurrent bouts of hemoptysis.
   - (b) Arterial embolic phenomena.
   - (c) Auricular fibrillation without failure.

Hemoptysis in more than amounts necessary to stain the sputum is of grave import. Wolf and Levine[23] point out that in their series of cases the average duration of life following the onset of severe hemoptysis is 35.5 months. Levine[14] stated that the average duration of life following the initial attack of congestive failure is 4.6 years. The development of auricular fibrillation is usually permanent and irreversible. In this state thrombus formation not infrequently occurs along the endocardium of the dilated and relatively immobile auricular walls. Some 75 per cent of these occur within the lumen of the auricular appendage (left), a common site for the origin of arterial embolization.

Bailey and his co-workers contraindications would be: (1) active rheumatic infection; (2) presence of superimposed subacute bacterial endocarditis; (3) cardiac failure uncontrollable by medical means; (4) presence of marked associated mitral regurgitation or other valve (aortic) deformities.

Smithy[18] states that the ideal candidate for operation is a patient in the younger range of years having a high grade of mitral stenosis, without evidence of more than minimal involvement of the other valves, and with severe disability from mechanical obstruction but little or no evidence of cardiomegaly, hepatomegaly, venous distention, and chronic fluid retention. Disability in cases of this nature is characterized by a definite group of complaints common to each: chronic weakness and fatigue, dyspnea on mild exertion, orthopnea with acute nocturnal exacerbations, persistent, exhausting cough with or without hemoptysis, palpitation, and periodic bouts of acute pulmonary edema. In the absence of much cardiac enlargement, venous engorgement, hepatomegaly, and peripheral edema, he considers such patients to be suffering almost entirely from mechanical obstruction to the flow of blood through the heart.

It is apparent from this discussion of the indications and contraindications that the internists and surgeons should get together soon and a preliminary effort at determining the indications for surgery, which later may be modified, should be made as the surgical patients are evaluated postoperatively.

Auricular Ligation for Recurrent Embolization

One of the most common causes of peripheral arterial emboli is rheumatic mitral stenosis. This disease occasions a slowing of blood within the left atrium and left auricular appendage. This stasis of blood, coupled with auricular fibrillation, leads to frequent thrombus formation in the left atrium. These thrombi are the most common antecedents of peripheral emboli in rheumatic heart disease. Our associates, Drs. Chester Thiem, Ben Sommers, and John Noble[21] have recently studied a series of cases for location of emboli within the heart of rheumatic mitral disease. Their figures indicate that the most common source of thrombi is in both auricular appendages. Previous to this study, we had ligated three left appendages in patients with recurrent embolization and mitral disease.[1] It is our feeling that this procedure may prove to be a very useful one in the prevention of future embolization. Our indications at present for doing this procedure are as follows:

1. The patient should be fifty-five years of age or younger.
2. There should be no evidence of severe coronary disease by clinical study and electrocardiogram.
3. The patient should not be in congestive heart failure at the time of operation.
4. The patient should have had evidence of embolic phenomena.
5. There should be no evidence of subacute bacterial endocarditis.

Perhaps the anticoagulants may control the formation of future thrombi, but certainly they do not dissolve any thrombi that are already present in the auricular appendage. As a matter of fact, we would like to suggest that both auricular appendages be ligated.

Aortic Stenosis

An additional word at this time on relief of the aortic stenosis associated with mitral disease. Attempts have been made in the past to dilate the aortic ring when stenosed. Recently it has been reported in the American Surgical Association by Glover[7] and his co-worker that a section of the aortic ring has been accomplished by means of a knife placed down through the carotid artery in the neck and impinging upon the aortic valve. At the present time it might be stated that we are not clear as to the indications and contraindications for such an operation. However, it is our belief that operations of this type should and will be done in the immediate future as soon as the indications are clear.

Summary

In summary, therefore, it is our belief that operative procedure for mitral stenosis should be carried out. A more definite set of indications and contraindications should be established. Until the advent of the experimental production of mitral stenosis is with us, human material should be used and the results compiled and information obtained for future reference.

Addendum

Since this paper was submitted for publication, two patients with mitral stenosis have been operated upon successfully. In both instances the mitral orifice was enlarged by way of the left auricle.

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COURSE IN PROBLEMS OF HUMAN INFERTILITY

Problems of human infertility will be discussed by gynecology specialists at the University of Minnesota's Center for Continuation Study Thursday through Saturday, September 28-30. The three-day course is open to all physicians in the state.

Fields to be discussed at the continuation course will cover such topics as the physiology of ovulation, various endocrine studies, the psychosomatic effects of sterility and artificial insemination.

Among the visiting faculty members who will direct some of the sessions will be Dr. Isador C. Rubin, clinical professor of gynecology, New York university college of medicine, New York City, and Dr. Fred A. Simmons, research assistant in gynecology, Harvard university medical school, and assistant in surgery, Tufts university, Boston.

Dr. Warren O. Nelson, professor of medicine, anatomy and histology, University of Iowa college of medicine, Iowa City, is another of the out-of-state specialists who will head discussion groups.

Present from the staff of the Mayo Foundation at Rochester to give one of the lectures, will be Dr. Lawrence M. Randall, professor of obstetrics and gynecology.

Also leading parts of the meeting will be Dr. John L. McKelvey, professor and head of obstetrics and gynecology at the University.

THE SIGNIFICANCE OF THE ISOLATED PULMONARY NODULE

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THE INCREASING USE of chest roentgenograms in community surveys and routine physical examinations has confronted physicians with a variety of unsuspected chest conditions including the isolated pulmonary nodule. This condition, variously designated as the "pulmonary coin lesion," the peripheral nodule, and commonly dismissed as a "tuberculoma," presents diagnostic and therapeutic implications far out of proportion to the seemingly insignificant nodule itself.

We have studied, over a period of the past four years, a total of ninety-six such nodules in patients from twelve to eighty-five years of age. The sexes were about equally divided and all were of the white race except one Indian girl twelve years of age.

These nodules differ widely in appearance. They have been found in all segments of the lung with their location of no special diagnostic value. Their size varies from 1 to 4 centimeters in diameter, thereby excluding the large bronchiogenic carcinomas and the smaller calcified areas (Gohn tubercles). They may be round or ovoid in contour with edges smooth, fuzzy or irregular. Their density varies from very soft infiltrates to extremely dense nodules with or without calcium deposits. The presence of calcium does not establish the benign or malignant nature of the process. The degree of calcification discernible on x-ray films, as Bloch[1] has shown, is indeed arbitrary and is largely dependent upon special x-ray techniques for its demonstration. The growth of a nodule is not necessarily a sign of cancer for it has been noted in fibroma, hamartoma, adenoma and the granulomas, while lack of growth may occasionally be noted in carcinoma over many months. All nodules observed in this series were entirely asymptomatic with two exceptions (bleeding from pulmonary cysts).

When confronted with a patient whose x-ray films reveal an isolated pulmonary nodule, careful studies should be instituted at once to attempt to determine the nature of the lesion. A careful history and complete physical examination should be supplemented by special diagnostic procedures as indicated. An exhaustive search must be made for primary tumors elsewhere and for underlying disease which might produce a local lung lesion. Laboratory studies of blood, urine, sputum, gastric washings, bone marrow, et cetera, may at times give a clue to the etiology of the nodule. Results to date in attempting to establish a diagnosis in an obscure pulmonary infiltration have suggested the desirability of skin testing particularly for tuberculosis, histoplasmosis, blastomycosis, coccidiomycosis and ecchinococcous disease.[7] Originally some, at least, of these infections were considered of local interest only, but more recently the migration of large numbers of people and modern air travel have rapidly dispelled our ideas regarding a so-called local habitat of certain yeast and fungus infections. Our experience from the studies in this series would seem to indicate, however, that skin test reactions possess suggestive rather than absolute diagnostic value in the case of isolated pulmonary nodules.

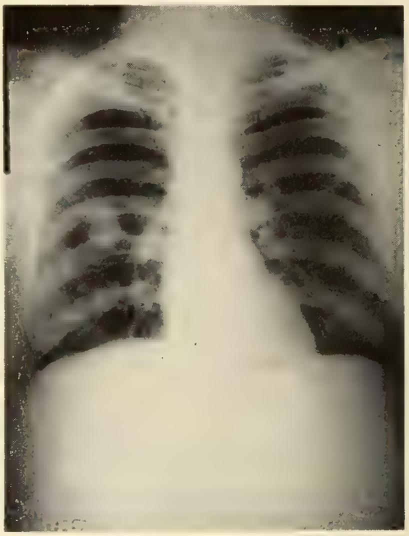

Fig. 1. An Isolated Pulmonary Nodule.

The relative frequency of tuberculosis and its tendency to involve the lung and to produce nodular areas of disease must place it high on the list of suspected causes of such nodules. Sputum, if any, must be carefully studied for mycobacterium tuberculosis. In its absence, bronchial secretions or washings obtained bronchoscopically or gastric washings may be studied cul-

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Read in symposium on Diseases of the Chest, sponsored by the Minnesota Chapter of the American College of Chest Physicians, at the annual meeting of the Minnesota State Medical Association, Duluth, Minnesota, June 12, 1950.

turally or by guinea pig inoculation in an attempt to recover the organisms. However, the relatively high incidence of malignancy in this series (27.3 per cent) and the usual rapid growth of bronchial malignancy makes one seriously doubt the wisdom of delaying definitive action six or eight weeks for such laboratory reports. As these nodules, even if tuberculous, are frequently closed lesions, failure to recover organisms from secretions does not rule out tuberculosis.[3] The old idea that all granulomas and calcifications in the lung were the result of tuberculosis has definitely been disproven.[5,7] Our efforts to demonstrate pathologic yeasts and fungi from similar material have been quite disappointing. The presence of malignant cells in bronchial secretions is, of course, diagnostic, but small peripheral primary carcinomas and metastatic tumors do not throw off recognizable cells as regularly as carcinoma in the larger bronchi and, hence, positive cell studies in patients with isolated pulmonary nodules are but rarely found. Negative reports, however, do not in any way rule out the presence of a malignant tumor.

X-ray studies are valuable not only in discovering the nodule originally, but also in localizing its position and may, through special techniques or planigraphy, demonstrate calcification, fluid level, cavitation or other suggestive diagnostic information. Cavitation with or without fluid level may suggest a tuberculous abscess but may also be seen with other granulomas, in pulmonary cysts or even in malignant lesions. Perhaps the most valuable x-ray study may lie in a comparison of the recent with older films if available. Evidence of growth of the lesion is certainly an indication for its prompt removal. Conversely, lack of growth over a period of even a year does not prove the nodule to be benign. Certainly the common practice of recommending another film in three to six months has nothing medically to recommend it and could easily in the presence of malignancy seal the patient's doom.

While in the early portion of this series, we made extensive studies of all types listed in an attempt to gain information which might help us to arrive at a correct clinical diagnosis, we have, as a result of the experience gained by these studies, reached the conclusion that the only reliable and accurate diagnostic procedure is exploratory thoracotomy with excision and prompt pathological examination of the mass. When, with the lung exposed and in the surgeon's hand, it is often impossible to accurately state the nature of the nodule, how can indirect studies be expected to furnish the answer?

TABLE I. ISOLATED PULMONARY NODULES.

Proven			55
Malignant	15 (27%)		
Bronchogenic Carcinoma		11	
Lymphosarcoma		1	
Metastatic (Breast, Colon, Testicle)		3	
Inflammatory	22 (40%)		
Granuloma			
Ecchinococcus		1	
Tuberculosis			
(Proven)		6	
(Suspected)		5	
Unproven		10	
Benign Tumors	18 (33%)		
Hamartoma		5	
Chondroma		1	
Adenoma		2	
Fibroma		2	
Bronchial Cyst		8	
Undiagnosed Nodules			41
TOTAL			96

From this series of ninety-six nodules listed above, fifty-five have been definitely proven by surgical operation (forty-nine) or by medical means (six). We have accepted as final medical proof the positive bronchoscopic biopsy of malignancy or the progression of such a lesion to fatal termination, the recovery of tubercle bacilli or the demonstration of a proven primary tumor elsewhere. Fifteen (27.3 per cent) of the fifty-five proven nodules were malignant. Eleven were due to primary bronchiogenic carcinoma, one to a primary lymphosarcoma in the periphery of the lung and three to solitary metastatic nodules from carcinoma of the breast, colon and testicle. Eighteen (32.7 per cent) were found to be benign tumors of the types listed in the table above. The number of pulmonary cysts and hamartomas in this group is somewhat higher than in the average reported series. Twenty-two (40 per cent) of the nodules proved to be inflammatory lesions or granulomas. Formerly erroneously called tuberculomas under the mistaken idea that all were tuberculous in nature, we now know that a variety of infectious agents may produce them. Granulomas may vary widely in gross and microscopic appearance from an abscess, a blocked or inspissated cavity full of soft caseous material, through all stages of attempted healing to the very mature granuloma showing the concentric rings resembling the growth rings of a tree. The myth of the harmless "tuberculoma" which need not be disturbed is easily dispelled by viewing a few of these excised granulomas which are caseous areas either primary or secondary or blocked or inspissated cavities whose contents, often teeming with bacilli, only await bronchial communication to spread infection widely throughout the lung.

The microscopic picture of most granulomas of varying etiology is strikingly similar and the only positive proof of the tuberculous or other specific etiology of such a lesion is the demonstration of the specific organism from it. The number of proven tuberculous granulomas (six of twenty-two) is rather small for this reason. We have listed five others as suggestive of tuberculosis because of the clinical findings and microscopic picture in and about the nodule and have wondered if the preoperative forty-eight-hour administration of streptomycin may have been a factor in negative cultures reported in this group. To date, our attempts to isolate other organisms from a group of these nodules through the co-operation of the mycologists at the University of Minnesota and the State Board of Health have been disappointing, hence, the ten nodules of undetermined etiology. Perhaps studies with other techniques and media may reveal more in future specimens. The fact that some of these nodules unquestionably represent completely mature and burned out lesions must also be considered. The forty-one undiagnosed nodules listed represent a group of patients who have either not completed their work up or have refused or postponed exploratory thoracotomy as recommended to the physician.

There has been no surgical mortality or complication in this series of surgically treated patients. The usual procedure has been, at open thoracotomy, to excise the local nodule by means of a wedge resection and suturing the lung behind clamps while the pathologist is making his examination of the excised nodule. This technique has been preferred to local enucleation which works very nicely with hamartoma and a few of the lesions but which can lead to gross contamination if abscess or active tuberculosis is encountered. The procedure has been extended to segmental resection, to lobectomy or even to pneumonectomy as local conditions and the pathologist's findings warrant.

This experience and the published reports of others have convinced us that an accurate preoperative diagnosis of the nature of an isolated pulmonary nodule is impossible in the vast majority of instances. Exploratory thoracotomy and immediate pathological examination provide the only accurate means of determining the exact nature of the lesion. The low calculated risk of such a procedure and the relatively high incidence of malignancy (27.3 per cent) in this series (40 per cent in other reported articles)[2,4,8] makes it the only safe and logical method of treating the isolated pulmonary nodule.

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ARMY AUTHORIZES APPOINTMENT OF WOMEN DOCTORS AS RESERVE CORPS OFFICERS

Appointment and concurrent assignment to active duty as Reserve Officers of women physicians, dentists, and allied specialists, has been authorized, it was announced August 30 by the Department of the Army.

They will be brought on duty under regulations currently providing for the commissioning of male officers in these Corps. Some women did serve in the Army as physicians and technicians during World War II, but their commissions have expired and legislation permitting their commissioning expired in 1947.

As Reserve officers on active duty, these women will be given opportunities for clinical practice and advancement which are now available to male officers in comparable grades, Major General R. W. Bliss, Surgeon General of the Army, pointed out. Appointments will be in grades from first lieutenant to colonel, depending upon age, experience, and professional qualifications. The pay, allowances, dependency and retirement benefits which accrue to male officers will apply to the women medical reservists. Women physicians and dentists will also draw the $100 a month professional pay allowed above the base pay of their commissioned rank. They will be eligible for service in every type of military medical facility, with the exception of forward medical installations in combat zones.

General Bliss said his office had received numerous letters during the past year from women physicians desiring military service.

CLINICAL DETECTION OF PULMONARY EMPHYSEMA FROM RESPIRATORY TRACINGS

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IN THIS DISCUSSION, I should like to attempt to illustrate the irrationality of attempting to estimate pulmonary functional reserve or determine the cause of functional disability from any single measurement of respiratory activity. The respiratory system is more than a mechanism for moving air in and out of the body: air must be moved in order to ventilate terminal pulmonary alveoli, but the lung itself exists mainly to support a vascular bridge between the right ventricle and left auricle.[4] This vascular bridge, made up of nets of capillaries in the alveolar walls, must accommodate the greatly varying minute output of the heart in a manner quite different from that in which an increased flow is handled by the general circulation. As the flow across the pulmonary bridge increases the pressure, the rate of flow in the lesser vessels normally does not rise, but rather the blood diffuses out into previously unopened capillary beds where respiratory gas exchange may then take place in the usual leisurely manner.

Figure 1 is borrowed from an excellent article on determination of pulmonary insufficiency[5] where it appeared recently, and illustrates the processes occurring within a normal lung. The air flow through the upper U-tube, the ventilatory phase of the respiratory process, might be measured with a clinical spirometer, and ordinarily amounts to between 4.5 and 6 liters per minute. The total volume of air that could be moved through the tube in one breath represents the vital capacity while the actual volume of the circuit constitutes the residual air or dead space within the lung. The dotted line between the opposed U-tubes represents the capillary-alveolar interface, and respiratory gas exchange takes place across the cross-hatched area. The area of the circuit marked "dead space" represents the fact that not all of the air ventilated reaches the capillary-alveolar interface. This "dead space" or residual air volume has been studied extensively,[1] and it has been found to be slightly less than 28 per cent of the total lung volume in a healthy man. Any increase in the residual air practically always indicates the presence of pulmonary emphysema.

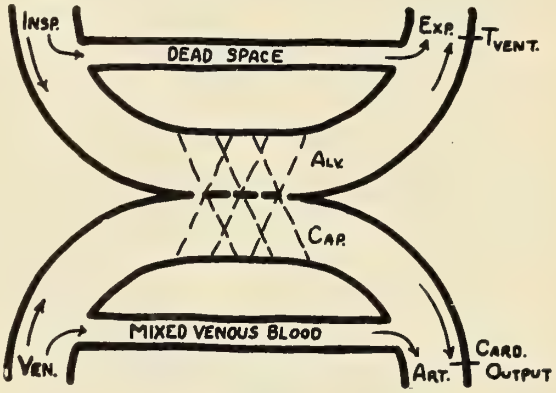

Fig. 1. Normal ventilation. Normal circulation.

The inverted U-tube represents the pulmonary circulation. The dynamics of this segment of the circulatory system have been investigated only since the advent of cardiac catheterization through a peripheral vein. By this means the pressures in the right ventricle and pulmonary artery have been measured, and from the rate of oxygen utilization the rate and volume of blood flow through the lung have been determined. It is important to remember that normally the pressure never rises in this system despite increases in minute volume of flow. Any increase in flow is accommodated by the opening of non-perfused capillary beds. If the necessary volume of new beds is not available because of some obliterative disease, then the pressure within the system must rise, and flow is speeded through the capillaries, or shunted around the beds completely.

Figure 2 represents the conditions which prevail when the airway is obstructed but the pulmonary circulation is left intact. The diagram might represent the picture of acute bronchial asthma, suffocation, spontaneous pneumothorax, or some types of pulmonary fibrosis. The causes of acute obstruction of the respiratory tract are

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Read in Symposium on Diseases of the Chest at the annual meeting of the Minnesota State Medical Association, Duluth, Minnesota, June 12, 1950. Sponsored by the Minnesota Chapter of the American College of Chest Physicians.

usually apparent, but before one could be sure that a chronic pulmonary disease was due solely to ventilatory dysfunction the dynamics of the pulmonary circulation would have to be investigated by cardiac catheterization.

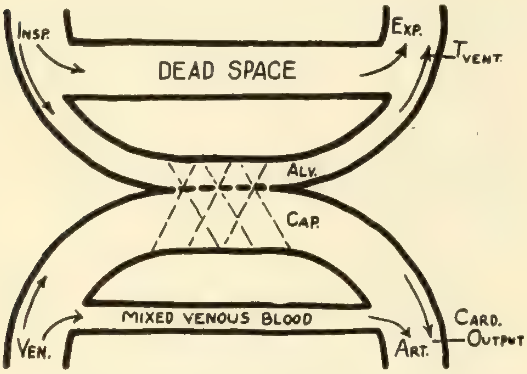

Fig. 2. Diminished ventilation. Normal circulation.

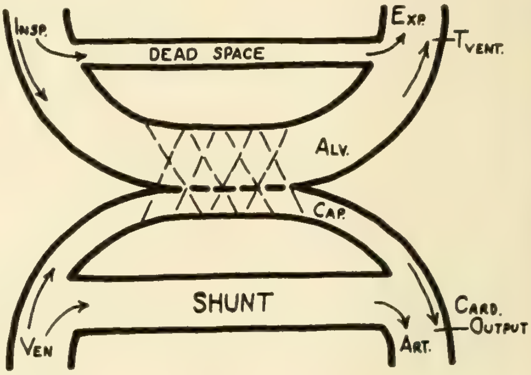

Fig. 3. Normal ventilation. Diminished circulation.

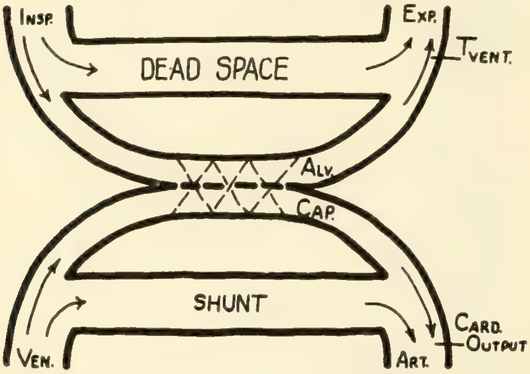

Fig. 4. Diminished ventilation. Diminished circulation.

Figure 3 represents the conditions which might prevail in cases of pulmonary hypertension due to pulmonary arteriosclerosis, either primary or secondary to some other disease such as mitral stenosis or some types of pulmonary fibrosis.[2] These diseases are certainly diseases of the pulmonary system and may present the picture of undue fatigue or dyspnea on exertion, cough, or hemoptysis. But without actual measurements of the dynamics of the pulmonary circulation, the real disease may lie undisclosed and, perhaps, unsuspected. Measurements of the ventilatory function alone would probably be normal and thus might even serve to turn one's attention away from the pulmonary system as the seat of disease.

Finally, Figure 4 illustrates a combination of circumstances in which there is both diminished ventilation of the alveoli and impaired perfusion of the capillary beds. This is the functional picture of pulmonary emphysema whether it be the hypertrophic bullous type, senile degenerative type, or the compensatory type seen surrounding a contracted scar of tuberculous inflammation or in portions of a lung distorted by the retraction of fibrous pleuritis. All chronic pulmonary emphysema is characterized by distention or distortion of alveolar spaces, loss of interstitial elastic fibers, and hypertrophy of the muscular layers of the arterioles with obliteration of associated capillary beds. To be able to detect or even suspect the presence of this type of combined ventilatory and circulatory disease would be a distinct advantage to the clinician because people harboring this type of pathology have lost a great deal of their ability to adapt either to an increased demand for oxygen-carbon dioxide exchange, or to an increased rate of blood flow through the pulmonary vascular bed. They are in a poor position to withstand any operative procedure within the thorax, they are more than usually susceptible to the pulmonary infections that so frequently follow general surgical procedures under anesthesia, and they suffer from a real disability which is often differentiated from malingering only with great difficulty.

In a recent study of pulmonary disability in cases of anthrasilicosis[6] through a comprehensive battery of both clinical and physiological tests two important conclusions were brought forth: first, pulmonary emphysema is the pathological process associated with most disabling pulmonary disease and, second, about one-half of the cases of advanced pulmonary emphysema may evade a competent examiner and be found only after extensive examinations of pulmonary function far beyond the scope of any clinical laboratory. It

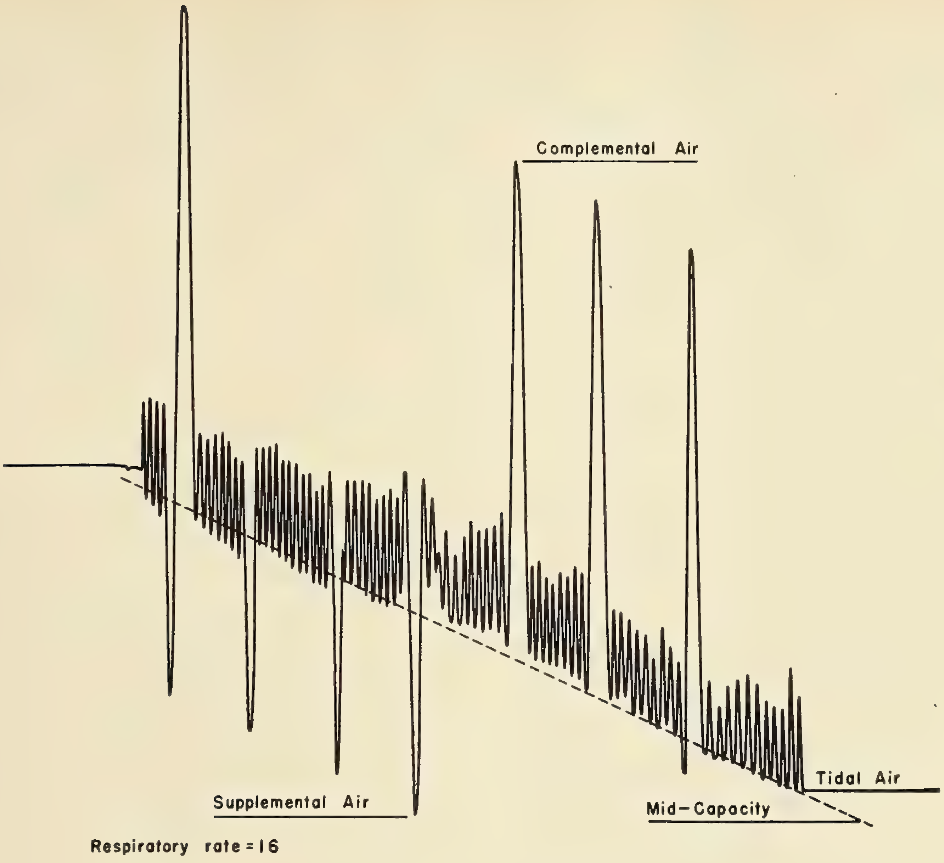

Fig. 5. Normal vital capacity.

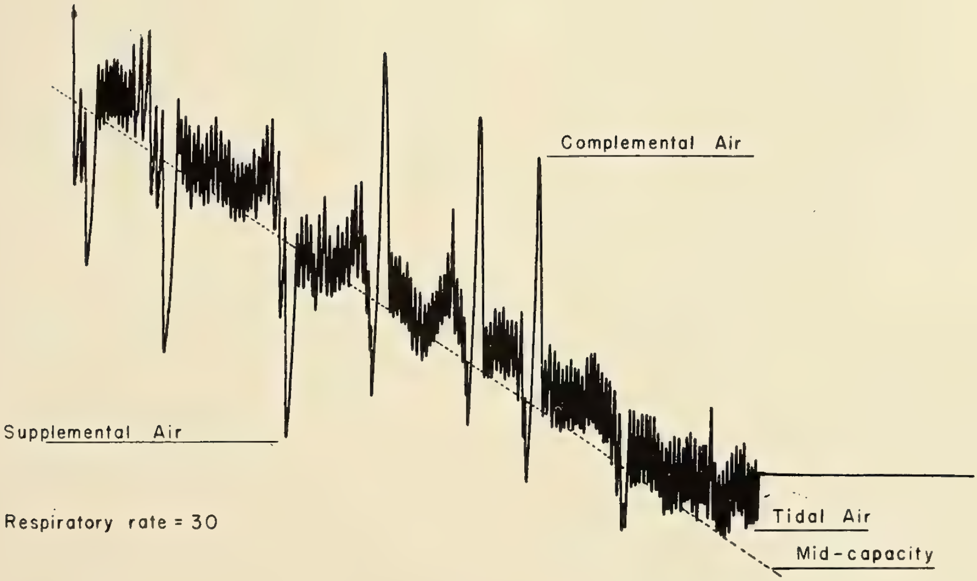

Fig. 6. Vital capacity in emphysema.

TABLE I. SEPARATION OF CASES OF EMPHYSEMA

By Means of Measurement of Lung Volume and from Consideration of the Character of the Respiratory Tracing

Classification	Vital Capacity	Alveolar Nitrogen Vol. %	Residual Air / Total Lung Volume	Distribution of Patients by Laboratory Measurement	Distribution Within Each Group from Consideration of Tracings Only
Group 1 Normal	Over 3500 c.c.	Less than 2.5	Less than 28%	9	All of the 18 patients in Groups 1 and 2 fell into the "grossly normal" classification.
Group 2 Slight emphysema	2500-3500	2.5-3	28-35	9	
Group 3 Moderate emphysema	1800-2500	3-5	35-45	2	18 of the 19 patients who were in Groups 3 and 4 fell into the "grossly abnormal" classification as did one patient from Group 2.
Group 4 Severe emphysema	Less than 1800 c.c.	Over 5	Over 45%	17	

also seemed apparent that symptoms of pulmonary insufficiency were dependent not so much on the silicosis or fibrosis as on the degree of pulmonary emphysema present.

Some years ago Christie described the breathing patterns of some organic as well as functional diseases. Figure 5 is a normal respiratory tracing. Note that the rate and depth of the breathing action are quite regular, and that the resting or mid-position of the chest is constant. The complemental air is over half the vital capacity and as it is expired, notice that the expiration line is not curved. Notice too that the chest returns to the mid-position after either deep inspiration or deep expiration. Figure 6 is a respiratory tracing illustrating moderately severe emphysema. The respiratory rate is rapid but not always regular, and there is some variation in depth of breathing. This case of emphysema was probably of moderate severity because the complemental air is little diminished. Two things, however, do indicate loss of pulmonary elasticity: (1) the curved expiratory lines as rate of expiration slows toward the end when more and more accessory muscles are called into play, and (2) the failure to return to a constant mid-position after either a deep inspiration or forced expiration.

An attempt has been made here to evaluate Christie's indications of emphysema in respiratory tracings by recording the impression gained from considering the vital capacity as well as other characteristics in spirometric tracings made by thirty-seven patients, most of whom were suffering from some cardiac or pulmonary disease. These impressions were then compared with actual measurements of the ratio of residual air to total lung volume made on the same patients. In many there was also available the measurement of the nitrogen concentration in the alveolar air after the patient had been breathing pure oxygen. This type of measurement was developed by Cournand and associates as an indication of thoroughness of ventilation of all the alveoli. In a normal well-ventilated lung less than 2.5 volumes per cent of nitrogen remain in the alveolar air after the subject has breathed pure oxygen for seven minutes. Any increase in the residual nitrogen usually signifies poor ventilation, most often due to the distended alveoli of pulmonary emphysema.

The thirty-seven cases were divided into a group of normals and three groups representing emphysema of varying degrees of severity. Division on the basis of laboratory examination alone included as normals any patients who had a residual air to total lung volume ratio of less than 28 per cent and an index of alveolar ventilation of 2.5 volumes per cent or less of nitrogen in the alveolar air. On the basis of inspection of the respiratory tracings, the normal group had a vital capacity in excess of 3500 c.c., showed rapid expiratory rate, and readily returned to the resting position after either a forced inspiration or forced expiration.

From Table I it is apparent that the two methods do not give parallel results, but notice that there is complete separation of normals and borderline cases from cases of severe emphysema. The clinical impression failed to detect only one case of slight emphysema but called five normal persons slightly abnormal.

Thus, with an adjunct system of examination only one abnormal person was missed. If examination of the respiratory tracings had been a part of the general physical examination which

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RESPIRATORY ALLERGIES IN CHILDREN

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RESPIRATORY allergies are present in the young child more frequently than are commonly diagnosed. A persistent nasal discharge in an infant is often casually attributed to irritation of the nasal mucosa by regurgitated vomitus, or to lint from bed clothes and fuzzy garments, or it may be dismissed as a common cold. The underlying possibility of allergy is not even considered until numerous repetitions of these symptoms have occurred or until true asthma develops.

In a study of 164 cases of asthma, Buffin[2] showed that 20 to 30 per cent of these children exhibited their first allergic symptoms before two years of life. The onset of bronchial asthma in the young child may be gradual or sudden. In those cases of gradual onset, frequent episodes of croup occur. Later, bronchitis with a chronic persistent cough develops. This cough is provoked by sticky secretions which initiate paroxysms of coughing that simulate pertussis. Wheezing appears next, usually in the presence of superimposed respiratory infection, and finally true asthma develops. The onset of asthma in the young child may be sudden and dramatic. The initial attack is rapid and appears immediately after the ingestion of some offending food or exposure to some irritating inhalant. In this group of cases there is usually no history of antecedent nasal symptoms. These patients frequently reveal isolated wheal formations upon skin testing. The management and treatment is simpler and more rewarding than in the gradual type of onset. Unfortunately, the number of cases of this type are in the minority. Asthma which develops early in life is likely to be more severe than that originating later.

In comparing asthma of the infant with that of the adult, some very startling differences are noted. The asthmatic infant does not manifest the same degree of dyspnea as the adult. The wheezing, with prolongation of expiration which is so common in the adult, is never seen in the same degree in the infant. These differences are probably due to the softer thoracic wall and the predominantly abdominal respirations of the infant. The young child does not exhibit the same degree of anxiety which is characteristic in the older patient. It is common to find children playing unconcerned, and yet on auscultation of the chest, there are present definite wheezes and râles.

Older children with nasal allergy present symptoms of recurrent nasal congestion, mouth breathing, watery-clear nasal discharge, and an associated hacking cough which is usually more prominent at night and disappears shortly after awakening. These children are irritable, restless, often temperamental individuals, and are erroneously labeled behavior problems.

Too many of these cases are subjected to tonsillectomies in the hope that fewer so-called "colds" will develop. Piness,[9] as early as 1925, warned that tonsillectomies, when performed for the relief of allergic symptoms, end in failure. Bullen[3] reviewed a series of 1000 children with allergic manifestations who had had tonsillectomies, and concluded that this procedure was of no help in the treatment of allergic children. Clein[4] also studied this problem and showed that in the majority of those cases in which lymphoid tissue reappeared in the pharynx following tonsillectomy there was present an underlying undiagnosed allergy.

Where sound surgical indications for tonsillectomies and adenoidectomies are present, the operation should be done, but not until the underlying allergic problem is properly diagnosed and under competent management. There is proof that if this procedure is done during the pollen season, a latent pollinosis, or asthma, may develop. A few of these children with abundant lymphoid tissue in the oral and naso-pharynx are benefited by radiation therapy.

If nasal symptoms are not controlled early in childhood serious disturbances of growth and development may occur. An obstructed nasal passage leads to mouth breathing with poor aeration of the sinuses resulting in their maldevelopment, and thus permanently affecting the facial contours. The low grade obstruction to the eustachian tube predisposes to frequent attacks of otitis and inevitable hearing loss.

The diagnosis of allergy in the infant and child

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Presented at the ninety-seventh annual session of the Minnesota State Medical Association, Duluth, Minnesota, June 13, 1950.

is extremely important because if the symptoms are controlled early, the likelihood of major allergic disease in adulthood with the irreversible anatomical changes such as palatine and facial deformities, emphysema and bronchiectasis is decreased. Children, when correctly diagnosed, usually respond dramatically to allergic control. It is a fallacy to assume that the child will outgrow his allergies. Clein[5] followed 100 cases of allergic children over a period of 10 to 15 years and discovered that the majority of these cases revealed their first symptoms before the first year of life. What is more startling is that 98 per cent of these 100 cases developed major allergic symptoms before their tenth birthday. This means that most of the major allergic symptoms in children are preschool problems.

The differential diagnosis of allergic rhinitis is relatively easy and will be discussed later, but the differential diagnosis of asthma is considerably more complex. Glaser[7] cautions that not all wheezing can be attributed to asthma. The differential diagnosis must include congenital stridors, foreign bodies, bronchial stenosis, laryngo-tracheo-bronchitis, pertussis, and pneumonitis. The possibility of a tumor mass, tuberculosis, or even fibro-cystic disease of the pancreas should be considered. Tracheal vascular anomalies and laryngo-spasm, due to tetany, must be differentiated in the young infant. A roentgenogram of the chest, or fluoroscopy, should be requested where any doubt of the diagnosis exists.

The presence of a concomitant allergic manifestation such as eczema or urticaria makes the diagnosis simpler. In diagnosing allergy, the family background is extremely important. Numerous studies concerning the hereditary factors in allergy have appeared. In general, the antecedent family history is positive in from 50 to 75 per cent of allergic individuals. This high incidence of family allergic history is in contrast with the low antecedent family history found in normal non-allergic persons of only 7 per cent. Vaughan[12] points out that the majority of allergic individuals who have a history of allergy in both parents will show evidence of their disease before ten years of age.

The history, properly taken, is the most valuable tool in considering an allergic problem. It should include the type of environment, habits of the child, and a chronological order of the symptoms. It is important to inquire concerning any seasonal relationship to the symptoms.

The investigation of the allergic patient should include a thorough physical examination. The general state of health must be evaluated, endocrine disturbances ought to be ruled out, and the foci of infection eliminated. The routine urine, blood count, and Mantoux tests should be requested. Upon examination of the nose, the airway is found to be narrow and inadequate. The nasal mucosa is a pale blue-grey color and varied degrees of edema and discharge are present. The presence of polyps is rare in children, but is seen frequently in the young adult. The pharyngeal wall is often studded with islands of lymphoid tissue giving a cobblestone-like appearance. In some of the older children the nasal mucosa, instead of being pale gray, is a deep red color. Obstruction of the nasal airway in these patients is the presenting symptom. Incidentally, this group of children do not respond well to the antihistamine group of drugs. The nature and the amount of the nasal secretion vary considerably. In the uncomplicated patients with allergic rhinitis these secretions are thin and clear, but, if an associated infection is present, the secretions are purulent and viscid. In either case, smears of the nasal secretions should be made. In the thin secretions, numerous eosinophiles will be seen. In the purulent secretions there will be clumps of polymorphonuclear cells present in addition. Roentgenograms of the sinuses frequently show thickening of the sinus mucosae, but in most cases this is due to edema and not to infection. The emphysematous chest, with flattened diaphragm and accentuated bronchovascular markings in the asthmatic individual, needs no further comment.

Investigation by cutaneous skin tests is indicated where definite allergy has been diagnosed, but a patient should never be skin tested in the hope of diagnosing an allergic condition. The method of performing skin tests has been the subject of considerable controversy, but in children the puncture technique is the method of choice. The application must be uniform, and fresh antigens are a necessity.

The mere performance of skin testing does not constitute a diagnostic procedure. In the interpretation of these tests, the child's age, food habits, environment, and severity of symptoms must be considered. The tests are of immense value if the limitations of this procedure are appreciated. Stoesser[10] stresses the fact that there is no correlation between the intensity of the skin reaction and the allergen's clinical significance. The complete elimination of the offending allergens would be ideal. In the young infant, in whom the diet is simple, and in whom the environment can be controlled, elimination of allergens is usually more successful. This is not possible in the older child.

The successful management of allergic diseases depends upon the thoroughness of the allergic investigation, the co-operation of child and parents, and the choice of medication. The majority of the failures in treatment are due to the fact that physician and patient alike expect a cure by the simple elimination of a few isolated allergens or by a few weeks of dietary restriction. A great deal of time and effort must be expended if good results are to be expected. Frequent interviews with the parents are necessary. The importance of such allergens as household pets, animal danders, insecticides, blooming plants, orris root, and smoke must be stressed. Adequate rest is a necessity. It is necessary to restrict physical activity. Swimming is usually curtailed because of irritation by water in the nose. The possible harm from long rides in the country during the pollination season must be pointed out.

Because of these restrictions, the psychological stresses on the already chronically ill child are increased. Bakwin and Bakwin[1] have emphasized the emotional factors in asthma. The allergic child may become overprotected and consequently become extremely dependent on the mother. One must constantly stress substitution in the child's management, and the need for outlets in activities which do not jeopardize the allergic condition.

Hyposensitization yields the best results in pollinosis and in the treatment of pollen asthma. Only mediocre results are obtained with inhalants. Molds are poor antigens, and in children hyposensitization with these antigens is of doubtful value. The attempt to hyposensitize to foods is usually disappointing.

The use of nose drops in the allergic individual is justifiable only for temporary relief. In children 0.25 per cent neosynephrin, 0.5 to 1 per cent propadrine hydrochloride, 0.5 to 1 per cent clopane, and 1 per cent onethyl sulfate may be employed. The antihistamine drugs are of value in allergic rhinitis. Stoesser[11] classified these drugs according to their general effectiveness. Antistine, neohetramine, and neoantergan give fewer side reactions but are also relatively weak drugs. Thephorin, chlor-trimeton, pyrrolozote pyribenzamine and benadryl are the more powerful members of this group. Thenylene, diatrin, histadyl, tagathen, chlorathen and decapryn are intermediary in action. In some children a sedative effect is desired and for these patients drugs such as decapryn or benadryl are particularly suited. A few children need added stimulation and this can be accomplished by thephorin. Some of the antihistamines have a very decided atropine-like action and are harmful in that they tend to dry the secretions and thereby precipitate asthma.

The use of antihistamines in the treatment of bronchial asthma has been highly overrated. Feinberg[6] makes this statement, "In the last three to four years as a result of high-powered publicity, the substitution of the antihistamines for the more efficient anti-asthmatic remedies and allergic management by physicians and patients has resulted in an actual deterioration of the management of asthma." The use of the antibiotics in the acute attack of asthma is abused. This may be due to the misconception that the asthmatic attack is caused by the infection alone. If the concept of underlying allergy with superimposed infection were clearly understood, a more reasonable plan of treatment would be followed. One must remember that these drugs, particularly penicillin and aureomycin, and to a lesser degree terramycin, are capable of sensitization.

The primary disturbance in bronchial asthma is obstruction of the bronchial tree by edema, smooth muscle spasm, and retained secretions. The main objective is to clear the bronchial tree of obstruction. Expectorant cough mixtures incorporating potassium iodide, sodium or potassium citrate, ammonium chloride or ipecac are essential in good management. Numerous mixtures of these drugs in combination with sedatives and antihistamines are available. Hydration in the asthmatic patient is extremely important. The ill child tends to become dehydrated thus further concentrating the secretions and often dramatic results by simple administration of fluids are obtained. The sympathomemitic drugs such as orthoxine, racephedrine, propadrine hydrochloride, benzylphedrine, isuprel and epinephrine are needed for their bronchodilator effect. These drugs may be used alone, but usually in conjunction with a sedative and/or an antihistamine. Syrup of orthoxine works well in the young infant, while franol, amodrine, tedral or amesec can be used in the child capable of swallowing a tablet. Epinephrine is the best drug in the treatment of the acute attack. Rubin, in Mitchell-Nelson's textbook,[8] states that small doses of adrenalin injected hypodermically may be given at frequent intervals for many days without harmful effects. Doses of 2 or 3 minims give just as effective relief as larger doses and the side effects are minimal. Epinephrine in oil or in gelatin may be employed for a more lasting effect, but be careful that the child is not sensitive to the vehicle used.

The xanthine drugs are also bronchodilators and of this group aminophylline works well. It may be used orally, rectally, or intravenously. In children, this drug frequently produces nausea and vomiting.

Conclusions

1. Allergic diseases of the respiratory system are common in the young child, but because of their insidious onset they are commonly misdiagnosed.

2. The most important factors in allergic management are a thorough allergic history, a detailed examination including skin tests and a complete orientation of both the parent and the patient.

3. Allergic children are commonly subjected to needless tonsillectomies.

4. The use of the antibiotics in allergic diseases has been abused.

5. The antihistamine drugs are of some help in children with allergic rhinitis. However, their value in the treatment of asthma has been highly overrated.

6. A return to a more rational form of therapy in asthma, using expectorants, hydration and bronchodilator drugs is indicated at this time.

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CLINICAL DETECTION OF PULMONARY EMPHYSEMA FROM RESPIRATORY TRACINGS

(Continued from Page 892)

included fluoroscopic examination of the chest, I feel certain that separation of persons with all degrees of emphysema from the normal group would be nearly complete. As part of a screening examination attempting to detect the presence of combined ventilatory and circulatory impairment in persons with pulmonary disease, consideration of respiratory tracings made on the ordinary clinical spirometer may be a very simple yet rewarding procedure.

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CANCER OF THE LARGE BOWEL

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CANCER of the large bowel is reported in sufficient frequency at St. Mary's hospital, Duluth, to make it a subject of interest and to warrant a review of all cases that have been treated in the years 1938-1947 inclusively. The fact that there are approximately 16,000 cases of cancer of the large bowel in the country annually poses a tremendous surgical problem. Such factors as better medical training in the various medical schools, the education of the public by the cancer control programs, more refined methods of diagnosis, and so forth, have no doubt contributed to its greater incidence in recent years. But, notwithstanding, there are still too many cancers of the large bowel that are seen at a stage of inoperability. This is especially true of cancer of the right colon, where obstruction is not an early occurrence. The disease is insidious to the point of hopelessness in some cases. Careful attention to history and a good physical and rectal examination will lend to early diagnosis. Over 50 per cent of lesions of the rectum and sigmoid are within reach of the average index finger, and still this simple but admittedly not too esthetic clinical maneuver is too often omitted. Extirpation of the lesion is possible in most cases, and in comparison with the survival rate of cancer in other organs, cancer of the colon is one of the most favorable for cure. Early diagnosis is of the essence, the responsibility being that of the attending physician, and not entirely the roentgenologist. To be well versed in proctoscopy is to diagnose cancer of the sigmoid early, but too few are skilled in the use of the proctoscope. To pass the same blindly, without caution, and without experience or some training is often disastrous, and seldom revealing. The patient is entitled to a careful consideration of abdominal discomfort, change in bowel habits, melena, fatigability, weight loss, and so forth, and unexplained symptoms warrant further study or periodic observations. In most series, the average delay from the onset of symptoms to hospitalization is about six months, which is far too long. However, once the diagnosis is made, the responsibility for competent care is that of the good surgeon whose surgical judgment will be guided by the absence or presence of obstruction, infection, and the general condition of the patient.

Surgical judgment means not only if and when to operate but what type of procedure should be done with minimal risk to the patient. A résumé of the indicated surgical procedures thought best by some of the recent writers on the subject will be cited a few paragraphs later.

TABLE I. NUMBER OF CASES PER YEAR

Year	No.	Per Cent
1938-42	24	23.1
1942-47	84	76.9
Total	108	100

TABLE II. SEX INCIDENCE

Sex	No.	Per Cent
Male	45	41.7
Female	63	58.3
Total	108	100

Incidence

Carcinoma of the colon comprises 10 per cent of all carcinomas and approximately one half of these are in the rectum. The sigmoid is next, the cecum is third.

An attempt is made to compare the site of predilection of cancer of the large bowel with other series of the larger clinics, and we see that the St. Mary's series corresponds rather closely.

TABLE III

	1931-45	1936-44	1907-28	1937-47
Source	Hines Vets.	Lahey	Mayo	St. Mary's
No. of Cases	1,330	1,457	3,542	108
Involved Sites and Percentages:				20 cases
Cecum	7.7	6.5	6	18.5
Ascending Colon				9 cases
Hepatic Flexure				7 cases
Transverse Colon				11 cases
Splenic flexure				6 cases
Descending Colon				6 cases
	15.9	17.1	17	36.1
Sigmoid	13.0	12.4	13.55	
				54 cases
Rectosigmoid	63..5	62.8	62.8	50.

The remarkable consistency of the above figures certainly belies any belief that geography, climate, social strata, and so forth have any influence on the incidence of carcinoma of the bowel. In fact, it would seem that this constancy of predilection depends more on basic anatomical structures and on local physiology.

At this point it is apropos to review the intrinsic blood supply of the large bowel and rectum, as the success of an anastomosis depends primarily on the blood supply. A beautiful anastomosis in a bloodless segment means nothing but disaster, but a good blood supply may minimize the dangers of the not too competent juncture.

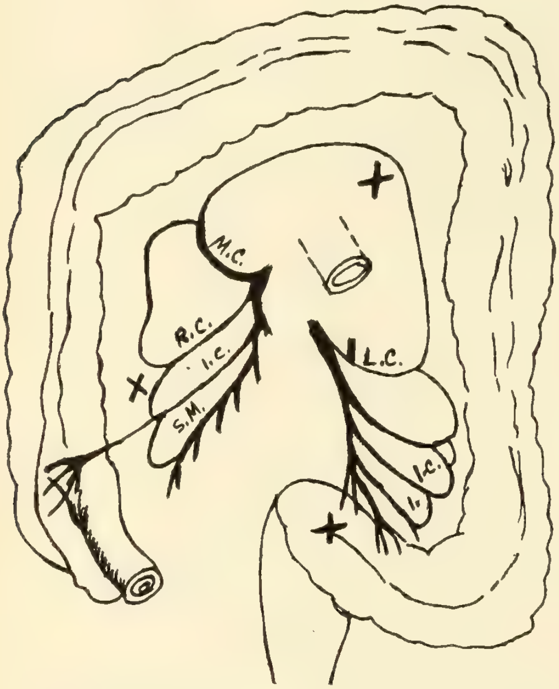


Fig. 1. X denotes weak points in marginal anastomosis.

Investigation into the blood supply of the colon has been stimulated by failures in colonic surgery, and injection of the arteries in cadavers has been the chief method of study. It is noted that the lymphatic supply is abundant and that the lymph channels follow closely the blood vessels to the origin of the mesenteric arteries. The extent of possible removal of the lymphatics is often limited because to remove them is to sacrifice vital blood vessels. In one's zeal to accomplish permanent cure, large vascular trunks may be ligated, endangering the circulation to the ileum and to longer colon lengths than anticipated.

The blood supply to the large bowel is from three major sources:

1. Superior mesenteric artery.
2. Inferior mesenteric artery.
3. Internal iliac branches:
    - a. Middle hemorrhoidal.
    - b. Inferior hemorrhoidal.
    - c. Pudendal artery.

Also, a better understanding of the colonic circulation may be had if we consider it in this light:

1. Main arteries.
2. Marginal artery, so-called the artery of Drummond and the vasa-recta.
3. The vessels within the bowel wall.

The marginal artery of Drummond joins the circulation from both mesenterics. This can be demonstrated by injecting media into either mesenteric artery and recovering it from the other. The vasa brevia are both long and short and enter the bowel on the mesenteric side naturally. The omentum with its good supply may have a part in colon surgery. Its blood comes from the gastric vessels, mainly the gastroepiploic. Its power of rapidly becoming adherent to the peritoneal surface, sealing over areas of questionable circulation and reinforcing suture lines is well known.

Although there are disadvantages in the arrangement of the blood supply to the colon, it still has some good points. We should be aware of the fact that all its arteries come from the center of a rectangle formed by the loops of the colon and radiate peripherally from the center. This means that the peritoneal reflection on the lateral aspect of both the descending and ascending colon

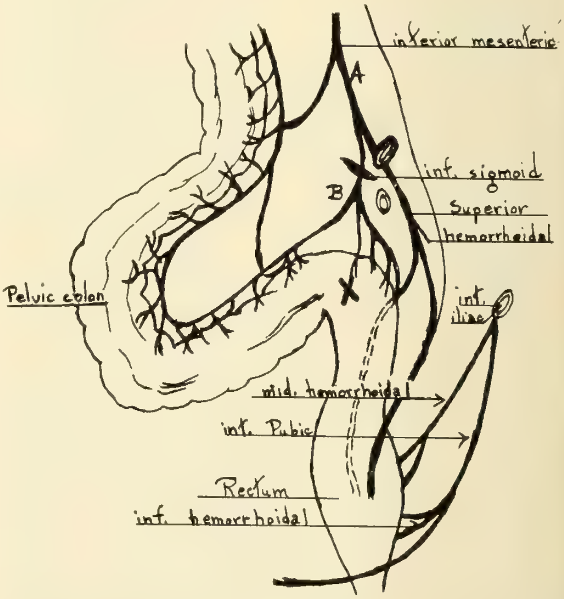


Fig. 2. Blood supply to the rectum, which is more richly supplied with blood than the other parts of the large bowel.

may be freely incised without encountering vessels and permits easy delivery of these segments of bowel from the abdomen, thus facilitating resection. The splenocolic ligament at the splenic flexure may require ligation for bleeding, but the attachment at the hepatic flexure may be severed with impunity.

Symptoms

A few points about symptoms. Usually an average from six to ten months elapses from the onset of symptoms until something medical is done. The first symptom may be sudden obstruction or perforation. Lahey states that at his clinic the time interval for all cases averages nine months with no betterment in recent years.

Unfortunately, many patients still undergo trial medical treatment too long: hemorrhoidectomies, appendectomies, and other surgical procedures before diagnostic studies are instituted. This is bad because the resectability of the tumor varies directly with the time of its existence. The following are the symptoms most frequently associated with tumors of the large bowel:

Abdominal Distress.—This is frequently more marked in the region of the descending colon, although often obstruction of the left colon will cause most distress in the dilated right bowel. Tenderness is chiefly on an inflammatory basis due, most likely, to degeneration of the tumor with secondary infection. The amount of distress depends upon the degree of obstruction and is usually aggravated by eating and relieved by a bowel movement. In about 8 per cent of the left colon lesions, acute obstruction is the first symptom. It is said that 5 per cent of the sigmoid tumors begin this way. Carcinoma of the cecum frequently is first diagnosed at appendectomy when the true pathology is usually noted by the surgeon. Further radical surgery at this time is done without the benefit of good preoperative preparation.

Change in Bowel Habits.—This is very important. A careful history may reveal alternating constipation and diarrhea. It is the contention of many that unfortunately this is not too early a sign and that it signifies considerable change in the mucosa or lumen of the bowel.

Mass in the Abdomen.—Many times this is the presenting complaint. Ten per cent of patients with carcinoma of the cecum discover a lump before the doctor. These patients are naturally thin ones, whose sigmoid and cecal areas can be easily palpated.

TABLE IV. DURATION OF SYMPTOMS

Duration	Number	Per Cent
Under 6 months	62	57.4
Over 6 months	16	14.8
Uncertain	30	27.8
Total	108	100

TABLE V. CLINICAL SYMPTOMS AND FINDINGS

	Neg.	Pos.	No. Inf.
Weight Loss	19	48	41
Anemia	22	23	63
Pain			
Upper Abdomen		11	
Lower Abdomen		35	
Both		32	
Palpable Mass	51	37	20
Occult Blood	26	31	51
Obstruction	8	66	34
Gross Hemorrhage	5	2	101
Perforation	5	3	100
+ X-Ray	37	34	37
Proctologic Exam.		28	80

Weight Loss.—Contrary to the usual belief, this is often an early sign and is nearly always present.

Blood in the Stools.—Found in about one-third of the patients with lesions in the left half, but in only 8 per cent with right colon involvement.

Other Complaints.—Anemia is characteristic of cecal involvement. The mechanism of the early anemia in cecal carcinoma is not clearly understood. Nausea, vomiting, weakness, anorexia, are other symptoms that are found and indicate some wasting disease.

From the standpoint of incidence, we note that in this series the three most important symptoms and findings are:

1. Pain
2. Obstruction
3. Weight loss

Pathology

The character of the lesion was proved by microscopic studies in a very high percentage of the series either by biopsy, removal of the tumor, or autopsy. Adenocarcinoma or a colloid modification of such is usually found; occasionally an undifferentiated carcinoma. Removed nodes can not be labeled malignant or benign grossly, and at operation frozen sections should be done before determining with conviction that the case is inoperable.

Multiple polyposis has been noted in about 2

TABLE VI

Pathology Diagnoses	
Adenocarcinoma	107
Carcinoma Simplex	2
Scirrhous Carcinoma	0
Others	2
Total	111

per cent of the cases of carcinoma of the bowel and the incidence of multiple carcinoma is rather rare.

Operability or Resectability

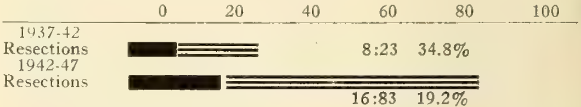
The above terms are relative ones. The attitude towards resectability has materially changed in recent years with gradual improvement in surgical principles, chemotherapy, preoperative preparation, et cetera. Operability has been extended to a remarkable degree, and even bearing in mind radical removal of possibly involved tissue, we have now arrived at the point where if the area can be mobilized, it may be removed rather safely. On the other hand, some have questioned the justification of radical operation in the presence of liver metastases. Nevertheless, a stormy convalescence in either of these cases is often justified by incredible periods of good health and well-being in a patient who is doomed.

Segments of the parietes are now removed with impunity but of course with a resultant higher mortality. The morbidity will also be greater, and both patient and doctor will sometimes wonder whether the effort to prolong life is worth while. The rate of cure is also decreased proportionately by the inclusion of these extensive operations. On the other hand, there is much to be said for a radical attitude. Not only does the patient have the best chance for a respite and a possible cure, but there is implanted in the mind of the young surgeon the correct viewpoint toward the increasing scope of surgery. In conclusion, resectability is probably a better term than operability.

The last chart was made to determine if the operative mortality has improved any in the last five-year period. The sulfonamides were in use in the first group and the second group had the additional aid of penicillin, sulfasuxadine, et cetera. Without any doubt, also, in the second five-year period there was better and more thorough preoperative and postoperative care.

Active interest in surgical management of malignancy of the large bowel has been more evident in the last twenty years. Anatomy and physiology, of course, have not changed, nor have all surgeons suddenly become experts, but no one doubts that surgical technique has increased the scope of resectability. Further benefits must come from earlier diagnosis, which obviously is lagging far behind surgical advances.

TABLE VII. NUMBER OF RESECTIONS OF CARCINOMA OF COLON AND OPERATIVE MORTALITY.



Multiple Stage 39
Single Stage 69

Anesthetic

Spinal	52
Others (Inhalation, Local, Intravenous)	56

Number of Surgeons 25

There are admittedly many different ways of attaining a certain surgical goal in a specific segment of bowel. The main prerequisite, however, is to do as extensive and radical an operation as possible without unduly jeopardizing the patient. Stating it differently, first the patient's life must be safeguarded; and second, the patient's health must be restored. This, if done by the open or closed method, by the one-stage or two-stage procedure, or by any other technique, makes little difference, provided the surgeon can show that his results from the standpoint of mortality and morbidity are equal to those of other techniques. Perfecting one technique is better than trying out every new surgical wrinkle that comes along. This is not the type of surgery that should be attempted alone by the occasional operator, but the aid of one experienced should be enlisted. If the 16,000 cases of carcinoma of the bowel were parcelled out equally to all surgeons, few would have sufficient experience to deal with them properly.

There are a variety of well thought-out operative procedures for patients with cancer of the colon. Those who champion one-stage procedures are apt to lay great emphasis on the benefits derived from prompt removal. This doesn't condone too great urgency. Obstruction, subacute perforation, or fixation must alter the course of the staunchest one-stage advocate. Graded procedures are needed for safety in this group. Many non-resectable lesions can be made operable by preliminary bowel drainage, and consideration must be given to exteriorization methods. So-called aseptic anastomosis versus open sutures must be critically weighed in each individual case.

In the final analysis, the main controversies in surgery of the colon revolve around: (1) the one or multiple stage procedure, and (2) the open and aseptic or closed method of anastomosis. Broadly speaking, as someone aptly stated, "less depends on the method than the manner of its execution."

Since there is considerable difference in the technique and the mortality rates in the extirpation of growths in the various segments of colon, it is desirable to discuss these regions separately.

The right colon is involved in this series in 30 per cent. Obstruction is seldom a problem here, and therefore decompression procedures seldom are necessary. The chance of survival is good due to the anatomic arrangement which makes it easier to include the entire lymph and vascular area in the resection. The terminal ileum and the right half of the colon must be included in the resection. The operative mortality in this group is relatively high. Charles W. Mayo does a one-stage with open anastomosis with a mortality of 8.4 per cent instead of the usual about 20 per cent. Lahey champions a Mikulicz type of resection as a primary operation, and closure of the complete fistula at a later date. His mortality is 13 per cent. Stone prefers a one-stage resection with aseptic anastomosis, and those operating at Massachusetts General have found that the mortality is less in the two-stage procedure. It is well to delay the preliminary ileo-transverse colostomy until the patient is in fine fettle from a preoperative standpoint. Sulfasuxadine or succinylsulfathiazole is a must and the Miller-Abbott tube should be used. Dangers of this operation are: (1) the usual double risk to two operations, and (2) obstruction of small bowel from herniations through the trap left by the ileocolostomy. This can be lessened by placing the anastomosis more than 12 inches from the ileocecal valve, thereby making the trap larger. Various methods have been suggested to manage the large, often infected, dead space resulting from resection of a large growth. Good drainage is very essential. The Mikulicz pack has enjoyed recent publicity and popularity.

Several procedures most commonly used for lesions of the transverse colon are resection and primary anastomosis, extraperitoneal resection, resection after preliminary cecostomy. Preliminary ileosigmoidostomy may be considered rarely, but may lead to an unnecessarily wide resection or may leave behind sizable defunctionalized segments of bowel. Primary resection is best adapted to lesions of the midcolon, and if the lesion is in the proximal third of the transverse colon, it can best be treated by the method used for the right colon.

We must always bear in mind the paucity of arterial blood at the distal end of the transverse colon, and if the resection is done in this virgin field, the bowel ends should be tested for viability.

The distal transverse, splenic flexure, and upper descending colon afford an ideal situation for a preliminary cecostomy followed by resection and aseptic anastomosis. A transverse incision is used well in this region. One may in some cases prefer Rankin's obstructive resection but immediate resection with anastomosis without preliminary drainage appears relatively hazardous in this region that is often obstructed.

The descending colon is involved the least. Representing one of the fixed areas of the colon, one cannot exteriorize the segment involved as easily as the sigmoid. Mobilization can be enhanced by dividing the suspensory ligaments to the splenic flexure. Obstructive resection has been popular at the Massachusetts General Hospital. Preliminary cecostomy, followed in ten days by resection and aseptic end-to-end anastomosis is the method of choice. There is some effort expended in closing the colostomy following obstructive resection, but preliminary cecostomy rarely requires surgical closure. In the absence of obstruction, resection with or without complementary cecostomy may be done. Complementary cecostomies heal more promptly than preliminary ones, due to the use of a small tube and shorter period of need for it.

For lesions of the sigmoid, although the operability is high and the operative mortality is low, the cure rate is considerably less than for the right colon. Lymphatic spread and earlier liver metastases account for this discrepancy. Many methods have been suggested to relieve the frequent and severe obstruction found at this site. The simplest and safest is cecostomy. If the growth is large or has produced an abscess by perforation, the cecostomy should be followed a few days later by a complete transverse colostomy. The Devine colostomy is rather well accepted in this country, but simple loop colostomy is becoming more popular. At any rate it is necessary to rest the infected bowel, and when possible to cleanse it preoperatively by means of irrigations.

The only price paid for safety and operability is the increased morbidity of additional hospital days. Many may be prepared for surgery without decompression and catharsis and enemas may be sufficient. Sulfasuxadine and succinylsulfathiazole are laxatives *per se*. Although it is the feeling of some that nothing more than such preparation is necessary before resection, many surgeons prefer decompression anyway. Whipple uses decompression frequently and Allen and Lahey do a preliminary tube cecostomy followed in about ten days by a Rankin obstructive resection. The use of a small catheter vent in the proximal segment placed near the clamp has been found helpful in this case.

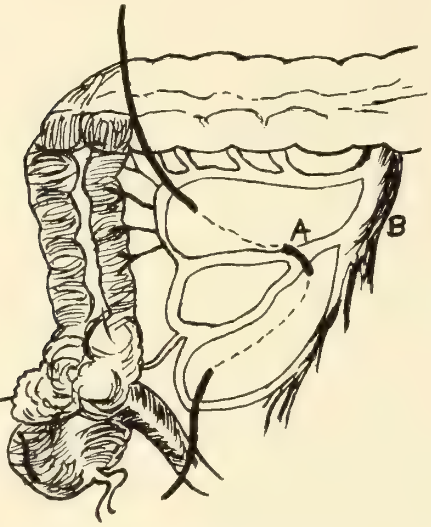


Fig. 3. The area of resection of the cecum with ligation of the ileocolic artery near the superior mesenteric at A. B indicates the main branch of the superior mesenteric which may be ligated inadvertently when an attempt is made to remove the lymphatic glands and which would result in death of a large part of the small intestine.

The history of surgery of the rectosigmoid and rectum is varied and interesting. Littre, in 1710, was one of the first to do a colostomy. Sixty years later a cecostomy was done, and in 1783, Duret successfully performed a left ilio-lumbar colostomy for an imperforate anus in a three-day infant. Then colostomy was not used in operations for extirpation of malignant lesions of the rectum till 100 years later when, in 1887, Shede did a preliminary colostomy for removing a tumor posteriorly and re-establishing bowel continuity. Until Miles presented his technique, in 1908, the surgical objective was extirpation and anastomosis of remaining segments to preserve the sphincteric mechanism. The emphasis was placed on the method of approach, i.e., perineal, sacral, anal, et cetera, and the degree of removal of the sacrum. The Kraske and Hochenegg procedures were in vogue. The Kraske was an end-to-end anastomosis of the sigmoid or rectum through a posterior approach without colostomy. The Hochenegg method was based on the principle of pulling the upper segment out through the anus and fixing it there with sutures. Colostomy was seldom done during this surgical era because the closure of a temporary colostomy was then accomplished by end-to-end anastomosis and carried a high mortality. Maunsell, in 1892, combined abdominal resection and perineal excision with sphincter preservation and posterior anastomosis. Miles modified the entire objective by minimizing the necessity for maintaining the sphincter mechanism and emphasized radical removal. He predicated this on the studies of the lymphatics of the rectum and concluded that the tumor also spread downward towards the anus. The compatibility of a colostomy with routine social, economic, and athletic activity was propagandized. Gradually, his teaching became universal. Nevertheless, in the past thirty-five years there have been sporadic attempts to develop operative procedures that would answer the need for wide excision and yet preserve anal continence. Lockhart-Mummery and Balfour in 1910 reported their experiences of anastomosis over a rectal tube.

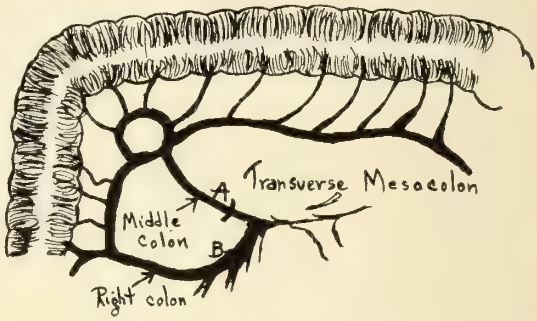


Fig. 4. In a certain number of cases where the left colic artery does not anastomose too freely with the middle colic part the splenic flexure, resection of the cecum and hepatic flexure may result in extensive devitalizing of the transverse colon when arteries are tied at A and B.

A new drive for eliminating the permanent colostomy was initiated in 1935 by Devine whose special transverse colostomy completely defunctionalized the distal colon, permitting later resection and anastomosis followed by closure of the colostomy. In 1937 Horsely resected the rectosigmoid after preliminary cecostomy and did an open anastomosis deep in the pelvis. Since 1939 reports have come from Babcock, Dixon, Fallis, Wangensteen and others, all with varying techniques but all with a common desire to eliminate permanent colostomy. This seems hopeful in the light of new interpretations in the mode of spread of carcinoma of the bowel. A half dozen investigators reveal that seldom is the spread by lymphatics or direct extension toward the anus. They think that a clearance of two inches below the tumor is sufficient. However, abdominoperineal resection is definitely indicated: (1) in widespread involvement of the sigmoid necessitating wide resection; (2) when the sphincters or levator muscles are involved; and (3) when the lesion is within three inches of the anus and encircles the canal (this may be debatable).

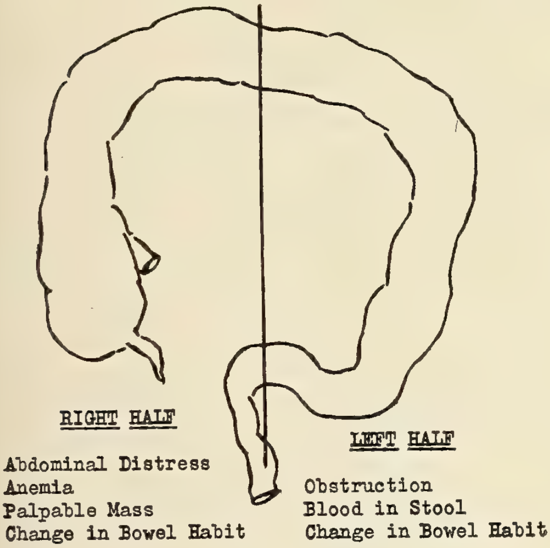


Fig. 5.

Summarizing, the temptation to make re-establishment of continuity the sole objective of the operation is one that must be guarded against if the surgeon is to avoid the most grievous of surgical sins, namely, fitting the patient to the operation rather than the operation to the patient.

General Complications

Complications of colon surgery are best brought out by another chart: Table VIII.

In closing, some general considerations to be stressed in bowel surgery may be briefly mentioned. Chemotherapy has proven a boon and preoperative sulfa and penicillin are a therapeutic necessity. Less sulfa is being used in the peritoneal cavity because of the liver damage often ensuing. Sulfasuxadine is a fine drug in this field because of its low absorption and toxicity and because of its laxative properties. Because of the antibiotics, complications such as abscess formation and wound infection are slow to appear and should be vigilantly watched for. The use of the Wangensteen and Miller-Abbott tube is indisputable and is only equaled by preliminary temporary cecostomy or colostomy. Intelligent use of the Miller-Abbott tube is paramount but a discussion of this is not within the scope of this paper.

TABLE VIII

Complications	Number	Per cent of 49	Per cent of Total
Peritonitis	6	13	5.5
Wound Infection	8	16	7.4
Pneumonia	9	18	8.3
Thrombosis	1	2	.92
Obstruction	9	18	8.3
Embolism	2	4	1.8
Others	14	29	12.8
(1) Coronary			
(2) Heart failure			
(3) Cerebral			
Total	49	100%	45.02

Delayed wound closure has been emphasized in this field. No matter how great care is exercised in the technique, these wounds have a relatively high incidence of infection. Coller's technique is to place the sutures, and then tie them and close the wound under pentothal anesthesia when no sepsis is assured, usually within seventy-two hours after resection. This practice has seldom been used at St. Mary's. Naturally, all the niceties and proprieties of preoperative and postoperative care are equally pertinent to this type of surgery.

In conclusion, bowel surgery will continue to pursue certain trends in the future as it has in the past. New techniques will replace the old. Many new drugs are just over the horizon, and consequently the tendency in recent years has been and in the future will be a steady decline in morbidity and mortality from the surgical aspect. May some panacea for early diagnosis be attained soon so that an ever increasing number of unfortunates will be spared the lot of death from cancer of the bowel.

BERYLLIOSIS

Brief Discussion and Presentation of a Case with Pulmonary, Digital and Axillary Node Involvement

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BERYLLIOSIS is a truly modern disorder. Though the metal beryllium was discovered in 1797, the first recognition of toxic effects was made in 1933[5] and the first report of beryllium toxicity in the United States was that of Van Ordstrand and associates in 1943. Beryllium was not extensively used until World War II. Because it resists corrosion and fatigue and increases the tensile strength of alloys, it is used in precision instruments, carburetors, airplane pipe lines and electrical instruments and in the coating of fluorescent tubing. Toxicity apparently does not arise from exposure to the ore beryl itself but from the fumes and dust encountered in extracting and processing beryllium. Therefore, toxic effects are seldom observed except in industries engaged in this work. Exposure to the occasional breakage of a fluorescent lamp is not a hazard unless one is cut by a piece of the glass which may cause a beryllium ulcer to form. Since June, 1949, all the major manufacturers of fluorescent lamps have discontinued the use of beryllium; so that this source of danger will eventually be eliminated. Because of the infrequency of berylliosis the condition is likely to be overlooked.

A brief review of the clinical aspects of berylliosis will here be given.

Dermatologic Manifestations

Within three to ten days after the initial exposure to beryllium fumes or dust, some cutaneous manifestations will develop in more than 25 per cent of the workers. A dermatitis may appear on the exposed parts of the body or a more or less generalized urticarial reaction may develop. The patient experiences a burning sensation or pruritus of the affected areas. The lesions respond well when the patient is removed from the offending environment and with the use of soothing and antipruritic lotions. The antihistaminic drugs are also thought to be helpful. Conjunctivitis may be associated with contact dermatitis of the face, but heals without complications.

A beryllium ulcer of the skin may develop if a minute crystal of beryllium enters through a cut or abrasion. A foreign body tissue reaction takes place which tends to ulcerate, heal and recur. This reaction evidently continues until the beryllium crystal is extruded or removed. Enlargement of the regional lymph nodes may be associated with the ulcer. Cuts from pieces of broken fluorescent tubing are a common source of beryllium ulcer. The treatment of this condition is excision of the region involved or incision and curettage to remove all traces of beryllium.

Respiratory Manifestations

Nasopharyngitis is an acute response to exposure to certain beryllium compounds. It consists of hyperemia and swelling of the mucous membrane of the nose and throat, and the patient notices soreness and bleeding. Ulceration, sometimes with perforation, of the nasal septum has been noted. The nasopharyngitis responds well when the worker is removed from the offending environment. It varies in severity.

Tracheobronchitis is an important development. It may exist without demonstrable pulmonary changes but it always precedes the development of pneumonitis. The symptoms associated with it are cough, dyspnea, occasional blood-streaked sputum, anorexia and loss of weight. No specific treatment is recommended, but failure to remove the worker from further exposure and failure to institute a strict rest program may lead to pneumonitis. When not complicated by pulmonary involvement the tracheobronchitis usually clears in four weeks or less.

Pneumonitis

Two forms of pneumonitis due to exposure to beryllium compounds are recognized, the acute and the chronic form. The acute form presumably results from a heavy exposure during a short period. The onset of symptoms is usually within a few hours or a few days after exposure. The patient complains of cough, dyspnea and substernal pain. The cough may be productive of small amounts of blood. With increase in the severity of

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symptoms, the patient becomes extremely short of breath, cyanotic and bedridden, requiring oxygen. Anorexia and loss of weight are nearly always present. Unless influenced by complications the temperature and leukocyte count remain near normal. The acute pneumonitis runs a fairly rapid course ending in death or recovery in a few weeks or a few months. The mortality rate exceeds 10 per cent. At first no roentgenographic abnormalities are observed in the lungs. Later diffuse bilateral changes appear, progressing from a haziness to irregular areas of infiltration and then to conglomerate nodules before complete resolution takes place. Pulmonary fibrosis may remain after recovery.

Chronic pneumonitis follows prolonged exposure to beryllium compounds. It may appear after years of exposure and may fail to become manifest until a long time after exposure has terminated. The early symptoms, usually progressive, are severe dyspnea, anorexia, loss of weight, cough, fatigue and weakness. With the development of extensive pulmonary changes, notably fibrosis, cor pulmonale develops. If fever is present it is usually low-grade. Little if any alteration from the normal is noted in the laboratory examinations of the urine, erythrocyte and leukocyte counts, sedimentation rate, protein, or urea nitrogen. With the advent of right heart failure, secondary polycythemia may develop. Roentgenographic abnormalities of the lungs are described[2,3] as progressing from the earliest changes consisting of a "diffuse fine granularity" to a later distinctly nodular type of lesion. Some enlargement of the mediastinal lymph nodes is frequently present.

The treatment of both the acute and the chronic pneumonitis is the same and consists of rest in bed, oxygen when indicated, and supportive measures. Removal from exposure to beryllium compounds, of course, is essential. Antihistaminic drugs are said to be helpful. Penicillin may be effective in preventing secondary infection or in treating infection if it supervenes. BAL has been used in the treatment of berylliosis without appreciable effect.

Pathology of Berylliosis

Hardy and Tabershaw in 1946 studied necropsy material from a case of fatal chronic berylliosis and called attention to the presence of granulomatous reactions in the lungs, liver and lymph nodes. However, for the life history of the lesions as studied in the acute and chronic phases we are indebted to Dutra, who, in 1948, detailed the necropsy findings seen in some twenty cases in which patients had died from the effects of berylliosis. Death in the acute phase was brought about as a result of interstitial pneumonitis and hemorrhagic edema which effected a marked interference with the exchange of alveolar gases. Superimposed infections and failure of the right cardiac ventricle were precipitating factors.

Microscopically the lesions were not highly specific, although a peculiar fibrinoid change was described, the material being brightly eosinophilic and arranged in irregular or serpentine strands. In a few cases there were scattered giant cells and fibroblasts which in Dutra's opinion presaged the formation of granulomas and bridged the gap between the acute and the chronic lesions.

In "chronic" cases terminating fatally, there were, in addition to pulmonary fibrosis, sclerosis of the pulmonary vessels and emphysema, nodular lesions in the pulmonary parenchyma. Microscopically these nodularities featured tubercle-like structures of the so-called hard variety resembling more those seen in sarcoid than the ones which are typical of tuberculosis. In a matrix of brightly eosinophilic material, probably representing the fibrinoid substance previously referred to, were scattered fibroblasts, lymphocytes, histiocytes and giant cells. Histiocytes tended to be round rather than ovoid like the epithelioid cells of sarcoidosis. Prominent in the tubercules were peculiarly whorled or laminated purplish-staining structures which were termed "conchoidal bodies." Some of these bodies were located within giant cells while others were seen to be lying free. Caseation was absent. There was no increased content of silicon and, most importantly, analyses for beryllium gave positive results. The regional hilar nodes and occasionally the liver contained granulomas similar to those seen in the lungs.

Though one cannot make an absolute diagnosis of beryllium pneumonitis except by recovering beryllium from the lesion produced in the tissues, nevertheless, with a history of sufficient exposure, a characteristic clinical course, and typical roentgenographic findings, there should be no more question of the diagnosis than in obvious cases of silicosis.

The following case is one with typical beryllium pneumonitis, a "healed" beryllium ulcer of the finger and an associated enlarged axillary lymph node from which beryllium was recovered by spectrographic analysis.

Report of Case

The patient, a white man aged thirty-five years who lived in southern Minnesota, was admitted to the Mayo Clinic on April 7, 1949. He was engaged in the wholesale electrical business and stated that since 1936 he had spent much time in making fluorescent lamps, having blown the glass and coated the tubes.

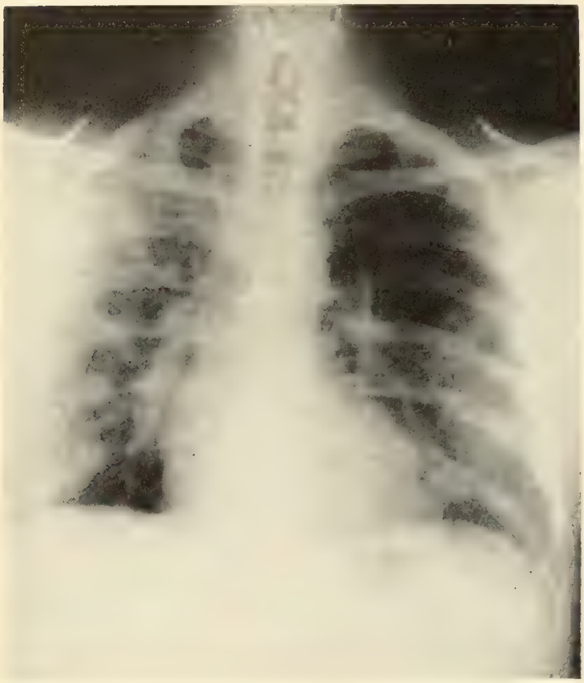

Fig. 1. Roentgenogram of the thorax of April 8, 1949 showing irregular consolidation in the peripheral portions of both lungs with enlargement of the hilar nodes.

His previous illnesses included an attack of what may have been rheumatic fever in childhood; pleurisy, dropsy and heart trouble in 1923; and pneumonia in 1923 and 1939.

For many years he had had a nonproductive cough which had increased in severity during the few months before admission. During the late fall of 1948 he had begun to notice dyspnea on exertion and fatigue. These symptoms had become progressively worse. He also had bilateral thoracic pain of pleuritic nature, and had noted pain in the lower dorsal region which was most noticeable in the morning and improved with activity. For several months before coming to the clinic he had noticed slight edema of the ankles, and for the previous two months, tachycardia and palpitation on exertion. He had never coughed up blood or experienced nocturnal dyspnea. During the two weeks before admission there had been a wheezing during inspiration. His weight had decreased from 205 pounds (about 93 kg.) to 187 pounds (about 85 kg.) in the preceding three months. Diuretics had been administered at home without appreciable effect on the edema or his symptoms. In 1945 while the patient was in the army a thoracic roentgenogram had been taken and apparently had been considered not to show any abnormality of the lungs. He presented a card from the chest x-ray survey reporting a film in 1948 as "negative."

His appearance when he was seated quietly did not suggest ill health. The color of his face and neck would darken when he lowered his head. He would become noticeably short of breath with slight exertion. There was no dilatation of the superficial veins of the neck. His heart was regular, the heart rate was 90 beats per minute, no murmur was detected, and there was no cardiac enlargement. Persistent fine râles were heard over the lower two-thirds of both lung fields. There was no clubbing of the finger nails, but a slight cyanosis of the nail beds could be seen. The liver and spleen were not enlarged and he had no edema of the extremities. At the base of the nail on the left fourth finger there was a healed scar which he said was the result of a lesion which would occasionally swell, drain some material, and then heal over. He thought this lesion had followed a cut by a piece of fluorescent glass. An abnormally enlarged lymph node was found in the left axillary space.

Laboratory examinations gave the following results: Hemoglobin, 14.8 gm. per 100 c.c. of blood; erythrocytes numbered 4,910,000 per cubic millimeter; leukocytes 6,600 per cubic millimeter, of which 51 per cent were neutrophils, 14 per cent monocytes, 27 per cent lymphocytes, 7.0 per cent eosinophils, 0.5 per cent basophils, and 0.5 per cent myelocytes. A smear of peripheral blood was reported to show a mild monocytosis but otherwise was not diagnostic of disease. Routine analysis of the urine gave normal findings. Though very little sputum could be obtained, examination of acid-fast stained smears showed no tubercle bacilli to be present. No tubercle bacilli grew on culture of two different specimens of gastric contents. No reaction occurred following the intradermal injection of 0.0001 mg. of tuberculin (PPD). The electrocardiogram was interpreted as follows: Rate 85, sinus rhythm; slurred QRS I, slight right axis deviation, diphasic P III, diphasic T III; V-1, inverted T; V-3, diphasic T; V-5, diphasic T. A roentgenogram of the chest was reported to show an irregular consolidation in the peripheral portions of both lungs and some enlargement of the hilar lymph nodes (Fig. 1).

On April 23, 1949, the enlarged left axillary lymph node was removed for pathologic study. Grossly the node exhibited a firmness suggestive of metastatic scirrhous carcinoma. The dry-appearing cut surface was of a mottled grayish-white color and it did not bulge.

Microscopically, under low magnification (Fig. 2) there was complete loss of nodal architecture and replacement by noncaseous tubercle-like structures, in a picture immediately identifying the lesion as a granuloma. The tubercles, which varied greatly in size, were isolated in some regions and conglomerate in others. With hematoxylin and eosin the bright pink staining of the tubercles stood out in marked contrast to that of the dark cords of lymphocytes in the surrounding nodal tissue. About every fifth tubercle contained one or more refractile dark purple staining acellular structures, the so-called conchoidal bodies. Giant cells were few.

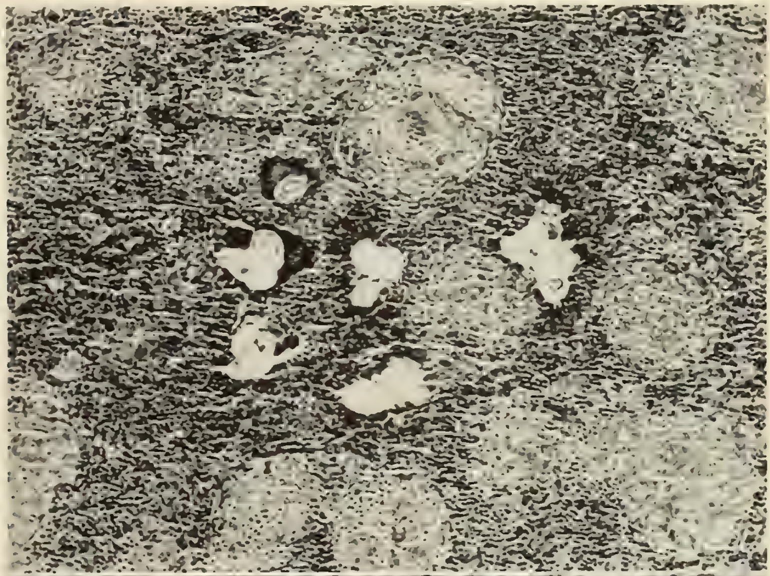

Fig. 2. The photomicrograph of the enlarged lymph node is typical of a granuloma with numerous "hard" tubercles which are pale-staining and lacking in necrosis. Giant cells are few. Conchoidal bodies appear in the clear zones (hematoxylin and eosin ×125).

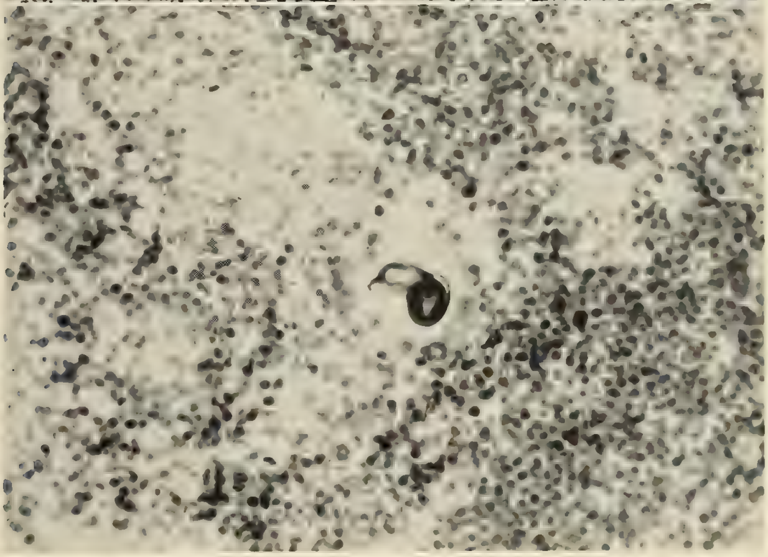

Fig. 3. Details of a tubercle showing the pale-staining histiocytes and one laminated dark-staining conchoidal body (hematoxylin and eosin ×285).

Under higher magnifications (Fig. 3) most of the pale cellular elements were seen to be histiocytes in a fibrinoid matrix which also incorporated a few plasma cells and lymphocytes. The conchoidal bodies appeared to be formed of a laminated particulate substance having some of the staining properties of calcium. They appeared similar to the structures occasionally seen in sarcoid, tuberculosis and regional enteritis, and they were not regarded as being specific for berylliosis. A portion of this lymph node was submitted to Dr. Frank Dutra of the Kettering Institute, Cincinnati, Ohio, for spectrographic analysis for beryllium. Dr. Dutra reported that his analysis of the specimen, which weighed 0.3 gm., showed the presence of 0.04 microgram of beryllium in the entire specimen.

The patient was advised to remove himself from all contact with beryllium powder or fumes, to undertake a rather strict rest program, and to avoid overexertion. He was last heard from in August 1950, at which time his condition was the same.

Because berylliosis is an uncommon disorder its presence is not likely to be suspected by the

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BENIGN TUMORS, NEVI AND PRECANCEROSES

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VERRUCAE (warts) are of several different types, one of the most common of which is verruca vulgaris. These lesions occur most frequently in children on the exposed parts of the body, especially the hands. They may be single or multiple. In adults they tend to be fewer in number. Verrucae may occur any place on the body, even on the tongue and oral mucosa. Ordinary warts may occur under and about the nails in which locations they are especially difficult to eradicate.

Verruca plana (flat or juvenile warts) occur as pin-head sized or slightly larger, smooth, flat lesions which are usually multiple and occur on the face, neck, hands and knees. They are most common in children although they may occur in adults.

Verruca plantaris may be also single or multiple and unilateral or bilateral. The so-called mosaic wart represents multiple, contiguous lesions forming a plaque with a granular surface. The black dots on the surface of plantar warts represents capillary loops.

Acuminate warts are small, pointed projections which when multiple and coalescent form a large, vegetating mass. This type usually occurs in moist areas such as the ano-genital region, axillas or under pendulous female breasts.

Treatment:—Ordinary warts are best removed by destructive measures such as the actual cautery or electrodesiccation. In certain cases of periungual or subungual warts x-rays may be preferable. Other methods, usually less reliable, include chemicals such as acid nitrate of mercury, trichloracetic acid and salicylic acid. In multiple warts intramuscular injections of bismuth salicylate may be helpful. In flat, juvenile warts destructive measures are usually impractical. In these cases injections of bismuth, mercury protiodide orally and exfoliating topical applications such as lotia alba or sal alcohol may be effective. Plantar warts are best treated by means of x-rays (1500 to 2000r) sharply localized to the lesions. Destructive measures such as cauterization or desiccation may occasionally be necessary. Most acuminate warts respond favorably to a 20 per cent solution of podophyllin in alcohol or acetone. Cleanliness and dryness is important to prevent recurrences.

Fibroma

Fibromas are benign, connective tissue growths which occur as single or flat, sessile or pedunculated lesions of pinkish, ivory or brownish color. They may be soft or hard. Most cutaneous fibromas originate in the perineurium of the peripheral nerves, hence are in reality neurofibromas. Some develop from connective tissue fibers of the corium. The term Von Recklinghausen's disease has been applied to multiple neurofibromas. Excision is the preferred treatment for single lesions.

Glomus Tumor

These are peculiar vascular tumors usually located in the nail bed at the site of arteriovenous anastomoses which regulate the local and general temperature. Clinically the tumors are small, bluish and extremely tender and painful. The most satisfactory treatment is thorough excision.

Sebaceous or Epidermal Cysts

These lesions occur chiefly on the scalp, back and scrotum. They are usually fluctuant, tense swellings the size of marbles. The overlying skin is usually smooth and shiny. The content of lesions is cheesy in nature. Secondary infection is rather frequent. Some observers have claimed that malignant degeneration occurs in a small percentage of cases. Although there are various methods of treatment, surgical excision is effective.

Nevus Pigmentosus (Pigmented Mole)

Pigmented moles are of various sizes, shapes and colors. Hairs may or may not be present and the surface may be smooth or rough. Quiescent moles may be removed for cosmetic reasons or because they occur at sites of irritation. The term junction nevus has been applied to that type in which nevus cells occur at the epidermo-dermal junction. Clinically they are flat, smooth, hairless and usually dark. They are considered potentially malignant and should be

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From the Department of Dermatology, Minneapolis General Hospital, Carl W. Laymon, M.D., Director; and the Division of Dermatology, University of Minnesota, H. E. Michelson, M.D., Director.

excised. Most benign moles can be adequately removed by means of destructive measures such as cauterization or desiccation. If a mole presents any sudden change in size, color or surface it should be widely excised.

Epithelial (Verrucous) Nevi

Such nevi are of epidermal origin and vary greatly in size, distribution, appearance and color pigment. Most of them are hairless. They frequently present a linear distribution. The term ichthyosis hystrix has been applied to localized multiple verrucous nevi, which are usually extensive and arranged in complex pattern. The preferred treatment is surgical removal whenever possible.

Vascular Nevi (Hemangiomas)

There are several types of vascular nevi. The port wine stain (nevus flammeus) is frequently unilateral and occurs usually on the face and neck, although it may appear anywhere. The lesions occur chiefly in infants and children, may be single or multiple and range in color from red to dark purple. They vary greatly in size and shape. They are usually smooth, but may be nodular on the surface. The general opinion prevails that the hazards of any effective treatment of port wine stains are so great that it is best not to treat them at all. There are certain preparations on the market which adequately cover them.

Strawberry marks (hemangioma simplex) are nevi in which large vessels are involved. They vary in size from a millimeter to several centimeters and in color from light red to scarlet or purple. They usually occur on the face, shoulders, scalp and neck, but may be found anywhere on the body. They tend to grow but frequently undergo spontaneous involution. Various methods of treatment have been used including injections of sclerosing solutions such as quinine-urethane, x-rays and radium, and solid carbon dioxide. Since so many of these lesions undergo spontaneous involution any form of treatment should be mild and expectant. Heavy doses of x-rays and radium are to be thoroughly condemned.

Cavernous hemangiomas are usually round, bright red or deep purple and spongy. As in other hemangiomas they occur most frequently on the head and neck but may be in other places. The lesions may be nodular, lobulated, polypoid or flat. Larger vessels are involved in this type of hemangioma. In general, the treatment is similar to that for strawberry nevi.

Leukoplakia

This is a precancerous lesion which represents a whitish thickening of the epithelium of the mucous membranes, especially of the lips, tongue and buccal mucosa. The lesions occur as superficial patches of various sizes and shapes. The surface is usually glistening and opalescent and often reticulated. There may be verrucous changes, erosions or fissures. Leukoplakia occurs chiefly in individuals past forty. Syphilis is only rarely an etiologic factor. Other predisposing factors are excessive smoking, poorly fitting dentures, jagged teeth and electrogalvanic currents between fillings and dentures.

In many cases observation is the only treatment necessary. Active treatment should be undertaken only if there is ulceration, erosion, fissuring or verrucous changes. Leukoplakia is radioresistant. Destruction with the cautery or desiccator under local anesthesia is frequently effective.

Radiodermatitis

Radiodermatitis must be regarded as a precancerosis. First degree burns are characterized by erythema with slight burning and itching which disappears after a few days or weeks. In second degree radiodermatitis there is edema, intense erythema and vesiculation followed in a few days by exudation and erosion and crusting. There is a loss of hair which may be permanent. Months later there may be atrophy and telangiectasia with excessive dryness of the skin followed by pigmentation, the formation of keratoses and later malignant degeneration. In third degree acute radiodermatitis there is extreme necrosis and ulceration with extremely slow healing which may take months.

In chronic radiodermatitis the skin is dry, thin, smooth, shiny and sensitive to trauma. There may be hyper or hypopigmentation. As the dermatitis progresses telangiectasia, keratoses and intense atrophy may develop. Ulceration which frequently develops into carcinoma is not uncommon.

Other disorders which may be complicated by malignant change include ulcers following burns or varicosities, lupus erythematosus and lupus vulgaris.

(Continued on Page 913)

THE EMERGENCY MATERNITY AND INFANT CARE PROGRAM IN MINNESOTA (EMIC)

A. B. ROSENFIELD, M.D., M.P.H.
Minneapolis, Minnesota

THE Emergency Maternity and Infant Care Program for the wives of servicemen in the four lowest grades, and for their infants during their first year of life, was developed as a part of the war effort during World War II. It was financed through the United States Children's Bureau and administered by the State Health Departments. In Minnesota, the program began in July, 1943. The maternal part closed in August, 1948, and the infant care part ended in June, 1949.

A total of 23,057 maternity cases received care in Minnesota at a cost of $2,238,050.10. The average cost per case was $97.07. There were 22,394 cases completed after delivery at an average cost of $46.44 for physicians' services and $54.25 for hospital care. Physicians attended all cases except for twenty-five attended by osteopaths, fifteen by midwives, and eight by others. There were 347 consultations, a ratio of sixteen per 1,000 cases, and fifty-eight cases required bedside nursing, a ratio of 2.6 per 1,000. Of all deliveries, 98.3 per cent took place in hospitals, with an average stay of nine days per case. This compares favorably with the state rate of 97.3 per cent but is lower than the hospitalization rates in the three large cities for 1948—Duluth 99.7 per cent, Minneapolis 99.4 per cent and St. Paul 99.0 per cent.

All medical and hospital care and immunization for infants were limited to the first year of life. The program provided for 7,515 infants at a total cost of $388,272.33, an average cost per case of $51.67. The average cost for physicians' services was $35.26 per case; for hospitalization it was $90.61 per case. Consultations were provided in 307 cases, a rate of forty per 1,000 cases. Bedside nursing was provided in thirty-nine cases or five per 1,000 cases. The average stay in the hospital was fifteen days.

Material and Method

The present study is based on a 10 per cent sampling of the 22,394 completed maternal cases, selecting every tenth application but excluding any incomplete or ineligible case. It should be noted that the number of applications is considerably greater than the completed cases, due to the fact that some incomplete cases were completed in other states and some applications were found to be ineligible under the regulations (Table I). This was especially true during the first year of the program. The entire data were obtained from the physicians' reports submitted to the State Department of Health. Neither the physicians' office records nor the hospital records were studied. The sample under consideration consists of 2,240 completed maternal cases. Infant cases are omitted because the services available were limited in extent and no follow-up was possible.

TABLE I. MATERNAL APPLICATIONS AND SAMPLE, BY YEARS

	Applications	Cases in Sample
July 6, 1943—July 5, 1944	8,440	547
July 6, 1944—July 5, 1945	7,912	725
July 6, 1945—July 5, 1946	6,374	703
July 6, 1946—July 5, 1947	1,775	224
July 6, 1947—August 1948	301	41
Total	24,802	2,240

TABLE II. SAMPLE OF 2,240 CASES FOLLOWED TO TERMINATION OF PREGNANCY

Received care in Minnesota	2,136
Known to have received care in another state	70
Termination before 20th week	33
False pregnancy	1
Total	2,240

The sample contains 2,136 cases that received full care in Minnesota (Table II), seventy that received part of the care in another state, thirty-three that terminated before the twentieth week, and one case of false pregnancy.

Consideration of the age of the mothers is quite interesting (Table III). Mothers in the age group of twenty to twenty-four years totalled 1,083 cases or 48 per cent of the sample. The usual proportion of maternal cases in this age group in Minnesota is about 30 per cent.

The fifteen to nineteen year age group included 14.5 per cent of the cases, in contrast to the usual 7 per cent in the state; 25 per cent in the twenty-

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From the Minnesota Department of Health, Division of Maternal and Child Health.

TABLE III. AGES OF MOTHERS IN MINNESOTA

	EMIC Program			Statewide
	No.		Percent	Percent
Under age 15	0			
15 years	2	325	14.5%	7.0%
16 years	14			
17 years	48			
18 years	95			
19 years	166			
20-24 years	1,083		48.4%	30.0%
25-29 years	554		24.7%	28.0%
30-34 years	142		6.3%	19.0%
35-39 years	30		1.3%	10.0%
40+	1		0.1%	3-4.0%
Not stated	105		4.7%	
Total	2,240		100.0%	

five to twenty-nine year age group, quite similar to the state proportion of 28 per cent; 6 per cent in the thirty to thirty-four year age group, compared with the state proportion of 19 per cent, and only one case in the age forty-or-over group, in which there are usually 3 to 4 per cent in Minnesota. The safest age groups are considered to be from fifteen through twenty-nine years of age. In the EMIC program, 88 per cent of all maternity cases were in this age group, whereas the state group contains only 67 to 68 per cent. On the other hand, in the age groups of thirty years and older, where the maternal mortality rises progressively, there were only 12 per cent in the EMIC program but 32 per cent in the state maternal cases. This factor was undoubtedly important in the low maternal mortality rate in the EMIC program.

TABLE IV. STAGE OF PREGNANCY AT FIRST ANTEPARTUM VISIT

Stage	No.
Unknown	3
6th wk. or earlier	77
7th wk.	73
8th wk.	84
9th wk.	111
10th wk.	135
11th wk.	104
12th wk.	108
13-16 wk.	350
17-20 wk.	319
21-24 wk.	267
25-28 wk.	230
29-32 wk.	197
33-36 wk.	126
37-40 wk.	56
Total	2,240

The mother's place of residence was in communities of 10,000 or more in 1,230 cases (55 per cent) and in communities of less than 10,000 population in 1,010 cases (45 per cent).

The records on stage of pregnancy at the date of the first antepartum visit are based on attending physicians' statements (Table IV). These records are of special interest, since such data are not readily available for obstetrical cases in Minnesota. Seventy-seven women visited their physician by the sixth week or earlier. The first prenatal examination was given in 695 cases (31 per cent) within the first three months of pregnancy. Within the first four and a half months pregnancy, 1,210 (54 per cent) had prenatal examinations. By the sixth month there were 1,631 or 73 per cent. On the other hand, 609 (27 per cent) did not have their first antenatal examination until after the sixth month, and fifty-six (2.5 per cent) until the ninth month of pregnancy, in spite of availability of medical care and the fact that the medical bill was being paid by the Federal government. Allowance must be made for the fact that prenatal care may have been obtained in another state, but this information was not supplied by the mother.

TABLE V. NUMBER OF ANTEPARTUM VISITS

Not clear	6
No visit before delivery	14
1 visit	48
2 visits	73
3 visits	129
4 visits	150
5 visits	181
6 visits	239
7 visits	314
8 visits	277
9 visits	219
10 or more	590

Antepartum visits to a physician totalled four or fewer in 400 cases, approximately 18 per cent of the sample (Table V). In 1,820 cases (81 per cent), five or more visits were made. Seven or more visits were made in 1,400 cases (62.5 per cent). Ten or more visits were made in 590 cases (26 per cent). Prenatal care was paid for separately with a required minimum of seven visits for the maximum fee. This factor may have contributed to the number of such visits. In the fourteen cases listed as having made no antepartum visits, five were first seen by the physician as "abortions," and eight were first examined at forty weeks. It is possible that prenatal care was given earlier outside of the state.

The duration of pregnancy was determined by the "expected date of confinement" which the physician entered on his report to the State Health Department (Table VI).

Thirty-seven cases terminated in an abortion at the twentieth week or earlier, and twenty-four cases terminated between the twenty-first and twenty-eighth weeks. A total of 1,911 cases (85 per cent) terminated between the thirty-ninth

TABLE VI. DURATION OF PREGNANCY TO TERMINATION

No. weeks	No. cases
Not known	2
20 or less	37
21-28	24
29-37	163
38	116
39	260
40	499
41	576
42	319
43	141
44	44
45	25
46	14
47	6
48	6
49	3
50	1
51	1
52	2
56	1
Total	2,240

TABLE VIII. TYPE OF DELIVERY

Type	No.	Per Cent
Abortion	33	(1.5%)
Spontaneous, including episiotomy	1,681	(75.0%)
Forceps—low or outlet*	229	(10.2%)
forceps (type not specified)	82	(3.6%)
middle or high	49	(2.2%)
Version and extraction	23	(1.0%)
Caesarian	39	(1.7%)
Operation for ectopic	1	
Not clear or not reported	103	(4.6%)

* "Outlet" specified in 67 cases.

No complications occurred in 1,884 cases (84 per cent). There were 204 obstetric complications (9 per cent), 127 non-obstetric complications (5.7 per cent) and twenty-two both obstetric and non-obstetric complications. Details are shown in Table IX.

TABLE VII. ESTIMATED AND ACTUAL DURATION OF PREGNANCY IN FOUR "LONG PREGNANCIES"

Duration of Pregnancy	52 weeks	52 weeks	55 weeks	56 weeks
First antepartum visit	4-18-44	10-19-44	6-12-46	5-10-44
Estimated date of delivery	9-28-44	4-16-45	1- 2-47	8- 9-44
Actual date of delivery	12-21-44	7- 5-45	4-16-47	11-28-44
Duration of pregnancy on birth certificate	Term	40 weeks	Term	Term
Birth weight of infant	7 lb. 6 oz.	7 lb. 1 oz.	8 lb. 15 oz.	7 lb. 5 oz.

and forty-third weeks of pregnancy. It is of interest to note that in 103 cases (4.6 per cent), the duration of pregnancy was apparently from the forty-fourth to the fifty-sixth week. The frequent unreliability of the expected date of confinement by Naegele's rule, based on the last menstrual period, is evidence by a study of Table VII on the four longest pregnancies in comparison with a study of the birth certificates in these cases.

According to the physician's statement, there were 113 premature infants, or 5 per cent of the sample. Twenty pairs of twins were born, 0.9 per cent, or approximately one in ninety births, the usual ratio. There were no triplets nor quadruplets.

The type of delivery was not clear or not reported in 103 cases (Table VIII). Thirty-three were designated as "abortion" by the physician. Spontaneous delivery occurred in 1,681 cases or 75 per cent. If low or outlet forceps deliveries totalling 229 are added, plus eighty-two forceps deliveries where the type was not specified, about 89 per cent of the sample could be classed as spontaneous deliveries. There were forty-nine middle or high forceps cases, twenty-three versions and extractions, thirty-nine caesarian sections, and one operation for ectopic pregnancy.

TABLE IX. COMPLICATIONS

Not clear or no report		3	
No complication of any sort		1,884	(84.1%)
Only non-obstetric complications		127	(5.7%)
Only obstetric complications		204	(9.1%)
Any obstetric complication except infection, toxemia or hemorrhage	60		
Infection only	45		
Toxemia only	34		
Hemorrhage, shock or trauma	44		
Any combination of infection, toxemia or hemorrhage alone	7		
Any combination of infection, toxemia or hemorrhage with other obstetric complications	14		
Both obstetric and non-obstetric complications		22	(1.0%)
Infection, toxemia or hemorrhage involved	17		
No infection, toxemia or hemorrhage involved	5		

Malformations were reported in thirty-one cases (2.8 per cent) and birth injuries in ten cases (0.8 per cent). Deaths from malformations and from birth injuries have averaged over the past years approximately 0.3 to 0.4 per cent of all births in Minnesota. The reporting in this series, therefore, appears valid for congenital malformations, but the number of birth injuries is probably considerably under-reported.

Blood tests for syphilis were negative in 2,059 cases (Table X). There were seven cases giving positive tests, and these women were given anti-syphilitic treatment. In 109 cases or 5 per cent, no blood test was made, even though such tests are made by the State Department of Health free of charge.

TABLE X. ANTEPARTUM TESTS FOR SYPHILIS

Not clear or no report	65
Syphilis test not made	109
Syphilis test made:	
Negative	2,059
Positive and	
Treatment given	7
Treatment not given	0

One or more postpartum examinations were made in 97 per cent of all cases. No postpartum examination was made in seventy cases (3 per cent of the sample).

In this 10 per cent sample there were two maternal deaths. It would appear that by multiplying by ten we should get the full picture of the EMIC program. This is not true, however—at least not in the case of maternal deaths. Since two deaths occurred in the 10 per cent sample, there would be a total of twenty deaths in the total program or a maternal mortality of 0.9 per 1,000 live births. Actually, a total of only twelve maternal deaths occurred. In order to be able to compare the EMIC maternal mortality rate with the state rate, the four full years of the program (1944-47 inclusive) were studied. During this period the EMIC maternal death rate was 0.7 per 1,000 live births in contrast with a rate of 1.1 for the maternal cases in the state but not in this program, a significant difference of 36 per cent. It should be noted, however, that the EMIC live births included only 7 per cent of the total state births. A preponderance of mothers were in the safest age group of fifteen through twenty-nine (88 per cent in contrast to the usual 68 per cent), and the group was a favored one economically, since medical and hospital care were provided for the asking. Nevertheless, there is no question that adequate prenatal care, good obstetrical and postpartum care, consultations, blood, antibiotics, hospitalization, and public health programs play a significant role in the reduction of maternal mortality.

As a war effort, this program was actively supported by Minnesota physicians and hospitals. The excellent training of the physicians, the competent care rendered, and the adequacy of facilities are evident in the good results obtained There was considerable complaint about the burdensome paper work involved, a natural concomitant of government medicine, even though a determined effort was made by the State Department of Health to minimize the required work in this area.

BENIGN TUMORS, NEVI AND PRECANCEROSES

(Continued from Page 909)

Keratoses

There are several types of keratoses. The ingestion of inorganic arsenic may cause discrete, warty lesions which are usually symmetrical and occur most commonly on the palms and soles. Such lesions may or may not appear for several years after the drug has been taken. Arsenical carcinoma may complicate arsenical keratoses.

Verruca senilis (seborrheic keratosis) occurs as multiple, slightly raised light brown or dark brown, rough lesions which usually involve the face, back and chest. They are usually flat and covered by loosely attached, greasy scales which when removed show a raw pulpy base. Epitheliomatous degeneration is extremely unusual. Such lesions may be adequately treated by destructive measures such as cauterization or desiccation.

Senile keratoses occur chiefly in old people, especially those who have been exposed to the elements over long periods of time. This type of keratosis occurs especially on the exposed parts, namely, the hands and face. They may be single or multiple, discrete, flat, keratotic, grayish-brown or black lesions. They are much firmer, more discrete and more raised than verruca senilis. It has been said that squamous cell epithelioma develops in 20-25 per cent of the cases. Senile keratoses may be destroyed by desiccation or cauterization. They are radioresistant.

Cutaneous horns may resemble the horns of animals. In reality they are similar to senile keratoses except that there is an excessive development of horny material. They occur mostly on the scalp and face, although they may appear in other areas. Squamous cell epithelioma is not infrequently found at the base. The best method of treatment is by surgical excision.

History of Medicine In Minnesota

MEDICINE AND ITS PRACTITIONERS IN OLMSTED COUNTY PRIOR TO 1900

NORA H. GUTHREY
Rochester, Minnesota

(Continued from August issue)

John N. Farrand (1843-1880), "physician, surgeon and accoucheur," recently graduated from the medical school of the University of Michigan, arrived in Oronoco, Olmsted County, in the autumn of 1870.

A native of Franklin County, Vermont, John N. Farrand was born on a farm near Fairfield on August 2, 1843. He received his academic education in Fairfield, taught local schools for a time, and studied medicine under a physician of Fairfield. About 1868, on leaving for medical college in Michigan, he was married at Fairfield to Helen A. Butler, a daughter of E. S. and S. A. Butler of that place. His wife accompanied him to Ann Arbor.

At Oronoco Dr. Farrand bought a farm in Section 17 of Oronoco Township and there established his home, just outside the village. The house still stood in 1947, although changed from its original appearance. The first child of Dr. and Mrs. Farrand, Corydon Butler Farrand, was born in Ann Arbor. Four other children, Thomas S., Helen S., Albert M. and John were born at Oronoco.

Dr. Farrand was an able physician, a fine man and citizen, who won confidence and esteem in a widespread territory. Social-minded and public-spirited, he was a frequent speaker at public gatherings, an ardent Republican, a member of Oronoco Lodge No. 52 of the Independent Order of Odd Fellows, and for a time clerk of the independent school district of Oronoco.

On June 23, 1880, in his thirty-seventh year, Dr. Farrand died by accident. He and Dr. Marshall T. Bascomb, an Oronocan home on a visit, were fishing from a rowboat in Lake Shady, which was formed, then as now, by damming the Zumbro River at Oronoco. The water was high and the current strong. When Dr. Bascomb suddenly discovered that the boat had drifted and was at the verge of the falls above the old village millsite, he warned his companion and jumped. He escaped but Dr. Farrand was carried over the dam and was drowned. The funeral was conducted at Oronoco by the Odd Fellows of that village, Rochester, Zumbrota and Mazeppa in the presence of nearly 200 persons from surrounding countryside and villages.

In September, 1882, Helen Butler Farrand was married to M. M. Clark, of Oronoco, and she later removed with him to Canada. After the death of Mr. Clark the widow was married to an old acquaintance from Vermont. She spent the remainder of her life in California. The daughter, Helen S. Farrand, was married to George Echer, of Oronoco, in July, 1882. The sons, named in a former paragraph, for many years were residents of southern Minnesota.

In Oronoco the immediate professional successors of Dr. Farrand were

Dr. William A. Vincent, Dr. Edgar A. Holmes and Dr. Hamilton P. Boardman.

Corydon Butler Farrand (1870-1912), born on July 17, 1870, at Ann Arbor, Michigan, was the eldest of the five children of Dr. John N. Farrand and Helen Butler Farrand who came to Oronoco, Olmsted County, in the autumn of 1870.

Corydon B. Farrand, of brilliant native abilities and engaging personality, "a born doctor," as old friends have said, received his early education in the schools of Oronoco and Rochester. For a few years in the late eighties he taught district schools near Oronoco and in the autumn of 1890 he matriculated at the medical school of the University of Minnesota, from which he was graduated in 1893. In that day local newspapers commonly mentioned medical students as "doctors," so that during his undergraduate years frequent notes appeared in the press about the activities of Dr. C. B. Farrand. During vacations he studied and practiced medicine with Dr. Charles Hill, of Pine Island; on June 16, 1892, the *Olmsted County Democrat* stated that he had formed a partnership with Dr. R. C. Banks of Pine Island and would "hold forth in and around Oronoco."

In January, 1893, Corydon Farrand was married to Daisy Williamson, of Oronoco, who was then a high school student in Rochester. Mrs. Farrand continued her school work, in Minneapolis during her husband's last term at the university, and in Rochester. In later years she was a proficient teacher in the county schools.

On graduation Dr. Farrand began medical practice in Oronoco, in the honorable tradition of his late father. In that year, 1893, he spent some months in New York in postgraduate work, became a member of the Olmsted County Medical Society and the Southern Minnesota Medical Association and was appointed county physician in the townships of Oronoco, New Haven and Farmington. After 1894 Dr. Farrand practiced intermittently and at various places: in the East, at Red Wing, Goodhue County, at Hammond's Ford, Wabasha County, in South Dakota and in Minneapolis. He died in Minneapolis in 1912 at the age of forty-two years.

Lloyd Anson Faulkner, of Saint Paul, born in 1862, was graduated from the Bennett College of Eclectic Medicine and Surgery of Chicago in 1885 and was licensed in Minnesota on June 6, 1885, receiving certificate No. 1063 (E). He was in Rochester, Olmsted County, briefly in October, 1889, as the eighth appointee, as an assistant physician, to the staff of the Second Minnesota Hospital for Insane. His appointment was made during the reorganization of the hospital after the resignation of the superintendent, Dr. J. E. Bowers, and some of the assistant physicians. Dr. Faulkner, who had come well recommended by members of the medical profession of Saint Paul, began his work but after two weeks resigned and returned to Saint Paul. A few years prior to 1907 he was practicing in Lonsdale, Rice County; later he was in Hanley Falls, Yellow Medicine County; before 1916 he was again in Saint Paul, where he resided into the early nineteen thirties.

Charles Edward Fawcett (1869-1939), for forty-six years a leading physician of Olmsted County, at Stewartville, was born in the county, at Marion, in Marion Township, on October 13, 1869. Descended from Thomas Fawcett a Quaker who came to America in 1736, he was a son of John Henry

Preston Fawcett and Emily J. Wooldridge Fawcett and a grandson of Thomas Fawcett and Delia McCullock Fawcett.

In 1856 Mr. and Mrs. Thomas Fawcett came from Newcastle, Henry County, Indiana, to a farm home near Mabel, Fillmore County, Minnesota, accompanied by their four unmarried children, John Mahlon, Adoniram and Margaret, and by an older daughter, Mary, her husband Obadiah Stillwell and their two children. In 1858 the family group settled in Marion Township, Olmsted County. Thomas Fawcett died in 1878, his wife in 1888. Their son John H. P. Fawcett, born in Henry County, Indiana, on September 6, 1840, operated a farm one mile east of Marion for ten years; in 1866 he settled in the village, where for thirty-five years, an upright and useful citizen, he was a successful merchant and the village postmaster. The service he rendered the community as a dentist and as a helper to physicians from Rochester who attended the sick in Marion, was told earlier in this history. His marriage to Emily J. Wooldridge, native of Clearfield County, Pennsylvania, took place in 1867 in Sumner Township, Fillmore County. In 1900 Mr. and Mrs. Fawcett removed to Stewartville; their three children were Charles E., Arthur C. and Myrta (Mrs. George Leonard, of Harlingen, Texas, who died on December 6, 1944). Dr. Arthur C. Fawcett, who died in 1948, had been for forty-seven years a leading practicing dentist in Rochester.

Charles E. Fawcett was educated at the public schools of Marion, at Darling's Business College, in Rochester, and at the Winona State Teachers College. After teaching rural schools for two years, he began the study of medicine with Dr. Horace H. Witherstine, of Rochester, in the summer of 1891; that autumn he matriculated at the medical school of Northwestern University, for a course of three years. During vacations in that period he continued to work with Dr. Witherstine and he also spent considerable time as observer and occasionally as helper in the operating rooms of the Drs. Mayo at St. Mary's Hospital. He was graduated from Northwestern University with the degree of doctor of medicine on April 24, 1893.

Dr. Fawcett spent his first three months as a practicing physician in Austin, Mower County, and on December 18, 1893, took up his residence in Stewartville. On November 29, 1894, he was married to Myrta A. Phelps, of Marion, a daughter of Nathan S. Phelps and Margaret Waldron Phelps; Mr. Phelps and his wife were members of families who early settled in Olmsted County. To Dr. and Mrs. Fawcett were born four children: Gale C., Lois M., Frances E. and Donald N. Mrs. Fawcett died on July 7, 1910, aged thirty-nine years. In 1913 Dr. Fawcett was married to Mabel Bates Slater, of Stewartville.

Representative of the highest type of general practitioner and family physician, Dr. Fawcett was respected, trusted and loved. He gave unfailing response to all who needed him, was guide, philosopher and friend as well as physician to his patients, and was all his life a constructive citizen. He long served on the local board of education, for many years as president, and to him has justly been credited in large part the excellence of the Stewartville school system. His business acumen was evidenced during the thirty-two years (1907-1939) that he was president of the First National (later Stewartville National) Bank in the village. A loyal Methodist, like his forebears, he served on the official church board at Stewartville for forty-four years. He was an active Mason (A. F. and A. M.), Worshipful Master of the local lodge for four years, and a member of the Modern Woodmen of America. On December 18, 1933, the fortieth anniversary of his coming to Stewartville, the community honored him at a large reception, an account of which, with a summary of the tributes paid him by the men and women of the community and by Fellow physicians, is preserved in the *Stewartville Star* of December 21, 1933.

Dr. Fawcett, ethical, and loyal to his profession, was a member of the Olmsted County Medical Society from 1893, through its affiliation with other county medical societies, the Southern Minnesota Medical Association, the Minnesota State Medical Association and the American Medical Association. He served as village health officer and as county physician for his section. During World War I he was a captain in the United States Army Medical Corps from July 25, 1918, to January 3, 1919; at the Medical Officers' Training Camp, Fort Riley, Kansas, until August 12, 1918; then at Camp Beauregard, Alexandria, Louisiana; thereafter on assignment with the Seventeenth Sanitary Train. A charter member of the Ivan Stringer Post of the American Legion, at Stewartville, he served many years, until his death, as post chaplain. When death came, the captain, as was fitting, was accorded full military funeral rites, at Woodlawn Cemetery in the village.

Dr. Charles E. Fawcett died at his home, from coronary thrombosis, on December 8, 1939, survived by his wife and four children. In 1947 Mrs. Fawcett continued to reside at the family home in Stewartville; Gale C. Fawcett, credit man with the Standard Oil Company, was in Minneapolis; Lois M. Fawcett was head of the reference department of the Minnesota Historical Society, Saint Paul; Frances E. Fawcett (Mrs. J. R. Illingworth), a nurse, was in Spokane, Washington; and Donald N. Fawcett was general purchasing agent, the Flintkote Company, in Ridgewood, New Jersey.

F. L. Fletcher, physician and surgeon, who had his office in his residence on College Hill (the address, in 1947, was 406 Fifth Street, S. W.) practiced his profession in Rochester, Minnesota, from around 1860 to his death on January 22, 1870, at the age of sixty-two years. That his professional card appeared for the first time in the *Rochester City Post* of December 2, 1862, is not necessarily evidence of recent arrival: "The doctor is an experienced physician, well acquainted with the many diseases incident in the community, his treatment of which is already proved." Other notes bring out that he was a Presbyterian and a tireless worker for temperance. A final note is, "By the decease of Dr. Fletcher, a devoted circle of kindred has been deprived of one to whom they were most tenderly attached. The church has been bereaved of one of its most worthy and constant members and the community has lost a citizen whose character was without reproach and whose modest worth and many excellencies were appreciated most by those who knew him best." Mrs. Fletcher died in April, 1874, at Windom, Minnesota, where she had lived with her daughter Mary (Mrs. John Hyatt) since the doctor's death; her grave is in Rochester beside that of her husband.

In his reminiscences, several times quoted in this article, the late Charles Nicholas Ainslie traced the relationship between the families of Fletcher, Ainslie and Hagaman, all well known in Rochester and vicinity. The Reverend George Ainslie, Indian missionary, and pioneer Presbyterian minister in Rochester, first came to the city in December, 1861. His first wife, Mary Jane Hagaman, of Holland Dutch descent, the daughter of Nicolas Hagaman, of Hagaman's Mills, near Amsterdam, New York, had died in January, 1861, leaving two small sons. In September, 1862, Mr. Ainslie returned to Rochester from a trip east, bringing with him his bride, Mary Elizabeth Denny, of Thetford, Vermont, and his two boys, John and Charles. On arrival, because their home on a farm two miles north of Rochester was not completed, the Ainslies went to the home of Dr. Fletcher for a week or two. "In the Fletcher family were three grown children, Nick, deaf and dumb, Susan, who later (February 16, 1864) married my uncle Charles, [Mary] and Violet a younger sister . . ." Of the three sons of Charles E. Hagaman and Susan Fletcher, two became farmers in Olmsted County; the third, Dr. Edwin A. Hagaman, a dentist, in 1947 long had been established in practice in Rochester and, like his grandfather, had his office in his home on College Hill.

Dr. Fletcher's medicine and instrument chest for many years after his death was stored in the attic of the Hagaman farm home. Dr. Hagaman has described it as a "Boxlike affair made of boards over an inch thick, covered with cowhide, hair on, bound with leather strips fastened on with big brass tacks. The instruments and bottles of pills we used as playthings —sometimes we took a pill to see how it tasted or what it did to us. They were sugar-coated and tasted good."

Daniel O. Fosgate for a time in the late seventies lived on Cascade Road, Rochester, Minnesota, and was proprietor of the Rochester Dispensary, in the Williams and Pierce Block at the corner of Third and Main Streets. There he gave treatments for catarrhal colds and diseases of the throat and lungs. Dr. Fosgate's professional cards from August, 1878, into March, 1880, stated that he was the only regular, educated physician in Minnesota devoting exclusive attention to these affections, that he had the only known cure for catarrh. He was perhaps more successful as an inventor than as a physician. In 1878-1879 he perfected and patented a sulky plow, which at first was manufactured by the Rochester (Minnesota) Plow Works and later by the New York Plow Company. Three thousand of the machines were made in 1880 for Australian trade. The plow was followed immediately by Fosgate's Challenge Harness Buckle, duly patented, and produced by the O. B. North Company of New Haven, Connecticut. At this period Dr. and Mrs. Fosgate were much in the East and the doctor's cards disappeared from the Rochester press.

Frederick Edouard Franchere (1866-1934), eleventh appointee, as an assistant physician on the staff of the Second Hospital for Insane, came to Rochester, Minnesota, in the autumn of 1890 and served until the summer of 1892, when he resigned to enter private practice.

A son of Evariste and Martha Franchere, of French descent, Frederick E. Franchere was born at North San Juan, California, on July 14, 1866. He was graduated from the high school at Lake Crystal, Minnesota, in 1882, attended the state normal school at Mankato in 1883 and 1884, was graduated from the medical department of the University of Minnesota in 1890, and served as intern at the Minneapolis City Hospital.

In Rochester Dr. Franchere, dark, slender, keen, talented, of fine personality, made friends socially and professionally. As an able, ethical and humane physician he did valuable work at the state hospital and in leavng was honored by the entire personnel. In March, 1891, he became a member of the Olmsted County Medical Society; on his initial appearance before the group he read a paper on chloroform and ether as an anesthetic mixture.

From Rochester Dr. Franchere went to Sioux City, Iowa, where he remained three years before returning to Minnesota to practice general medicine and surgery, with special attention to the eye, ear, nose and throat, at St. James, from 1895 to 1902. In this period he was a railroad surgeon for two different roads and coroner of Watonwan County. In 1902 he returned to Sioux City to specalize in eye, ear, nose and throat work, a field in which he achieved distinguished success, as he did in the field of nervous and mental diseases.

Although Dr. Franchere's story from 1902 to 1934 belongs to the history of medicine in Iowa, a few points of interest are mentioned here. A constant student of medicine, Dr. Franchere traveled at home and abroad and contributed consistently to the medical literature. He was a member of county, state, district, national and special medical societies; a member and the secretary of the faculty of the old Sioux City College of Medicine, serving at different times as professor of neurology and professor of ophthalmology and otolaryngology; and he was on the staffs of four Sioux City hospitals. He was a member of St. Thomas Episcopal Church, of civic associations and fraternal organizations, and long was the director and secretary of the Sioux City Fine Arts Society. He was a skilled musician, an artist of note in oils and water colors, a student of astronomy, paleontology, ethnology and anthropology. Admired and respected for his abilities, he was loved for the warm kindliness and generosity toward his fellow creatures that distinguished him as early as his Olmsted County days.

Frederick E. Franchere was married on April 30, 1895, to Helen Catlin Hoyt, of Sioux City; he died on April 28, 1934, survived by his wife, two daughters and one son. In 1945 Mrs. Franchere was living in Sioux City. Mabel Catlin Franchere was the wife of Henry L. Kamphoefner, Professor of Architecture, University of Oklahoma, at Norman. Margaret Parrish Franchere was instructor in French in the Sioux City High School. Hoyt Catlin Franchere was associate professor of English at the University of Oregon at Eugene; Professor Franchere and his wife Ruth Frances have one daughter, Julie Victoire. Dr. Frederick W. Franchere, a native of Lake Crystal, Minnesota, and a nephew of Dr. F. E. Franchere, since 1911 has been (1947) a well-known practitioner in that city.

Hector Galloway (1828-1899), representative of the best in medicine and surgery of his day, was the first resident physician in Olmsted County and for twenty-four consecutive years was a leading member of the medical profession of the county. In the spring of 1855 he established his residence in the village of Oronoco, having first visited the site in March, 1854, with the three men from Allamakee County, Iowa, who founded Oronoco. In October, 1864, he came to Rochester.

Born in Mansfield Township, Cattaraugus County, New York, on June 28, 1828, Hector Galloway received his early education in the local schools. At the age of eighteen years he began teaching school at Ellicottville, and for several years taught in winter and studied medicine under a preceptor the remainder of the year. In 1852 he entered the Geneva Medical College, at Geneva, New York, from which he was graduated on completion of the required two courses of lectures. Shortly afterward he came to McGregor, Iowa, on the Mississippi River, where he practiced medicine until his removal to Oronoco.

Dr. Galloway spent nine useful years in Oronoco, practicing medicine ably under pioneer conditions and otherwise serving the region. A talented writer, he was chief editor of the *Oronoco Courier*, a seven column newspaper established by a group of Oronoco businessmen in the autumn of 1856, the first paper published in Olmsted County and conceded to be one of the best country newspapers in the state. The depression of 1857 together with the election the next year of Dr. Galloway and the local editor, E. Allen Power, as state senator and representative respectively, brought the paper to an end. Although the legislature did not convene that term, Dr. Galloway held his office and reported for work in January, 1860. He became superintendent of schools of Oronoco Township when the schools changed to the township system in 1860. With the coming of the Civil War he played an active part in local military affairs. When the citizens of Oronoco on April 25, 1861, met to organize the Oronoco Guards, of the Olmsted County Volunteers, Dr. Galloway was chairman, and later was fifer of the guards. On May 21, 1864, he was appointed surgeon of the Thirteenth Regiment, Minnesota State Militia, with rank of major, and thereafter was official examiner, at Oronoco, of persons claiming exemption from military duty. After he settled in Rochester, in October, 1864, he was for a time on duty on the Enrollment Board of the First Congressional District.

In Rochester Dr. Galloway first had his office in his home, a roomy frame house on Prospect Street (now Third Avenue, S. W.) opposite the site of the present post office. By June, 1866, he had rooms over the Woodard and Ells Drugstore on Broadway; again in his home in 1869; and from 1875 to 1879, in partnership with Dr. Francis A. Sanborn, in rooms facing on Zumbro Street, back of Hargesheimer's Drugstore.

Tall, handsome, vigorous, weighing 212 pounds (a weight that qualified him for membership in the social "Marrowfats," mentioned earlier in this chronicle), gentle and kindly, of superior culture and fine feeling, deliberate in diagnosis, on excellent terms with his colleagues, Dr. Galloway captured the fancy and won the affection and respect of the community. Venerable citizens recall, as do descendants of early residents, that he was the first physician who attended their families. His practice was comprehensive. He and Dr. W. W. Mayo often consulted together professionally and assisted each other in performing surgical operations. Today the consensus is that Dr. Galloway was a good physician and surgeon of unquestioned integrity. His sense of ethics was such, in fact, that it led to impatience with well-meaning persons who inquired too solicitously after their sick neighbors: Once in the Oronoco days as the doctor was returning with team and driver from a call at Genoa, a farm resident came running to the road, his arms flailing, to stop the carriage. "How is Mrs. . . . . . . ?" he called. "She's sick; drive on, Sam," said Dr. Galloway.

"His one fault," it is said, "was an incapacity to push himself forward to the station to which he was justly entitled." In 1866, for the second time a candidate for senator, he lost the campaign because, as he said, he could not travel around admiring pigs and kissing babies. He served, however, in various civic and professional capacities: member of the city board of health of Rochester with Drs. J. S. Allen and W. W. Mayo; county coroner at intervals from 1865 to 1873; school commissioner and member of the board of education from 1865 to 1867; a physician to the Olmsted County Poor Farm in 1870 and in county work thereafter; and as preceptor of medical students. He was a Mason, member of Rochester Lodge No. 21 (A. F. and A. M.) and a Knight Templar; he had the sword and probably the rest of the appropriate regalia and wore a Knight Templar charm on his watch chain.

Dr. Galloway's name figured in records of medical organizations. He was a founder, on April 15, 1868, of the original Olmsted County Medical Society; head of the committee on theory and practice of medicine and one of the committee to devise the first fee bill; and was a faithful contributor to discussions and debates, which covered a range of subjects from medicine and surgery to ethnology and physics. At a meeting on February 13, 1869, he read an essay on the philosophy of disease, in which, the *Rochester Post* reported, he announced "novel theories respecting the origin and progress of disease; the exposition abounded in apt illustrations and logical arguments in their support. Maintaining that all diseases have their source in interruptions of the process of nutrition, the doctor divided them into two classes, viz: first, those springing from causes extraneous to the system; and, secondly, those proceeding from vicious qualities of the organ itself . . ." Cancer, scrofula and consumption he named as examples of disease caused by imperfections of the oragnism in the task of nutrition. It was at this meeting that Dr. Galloway made his prophecy, still quoted locally in 1947, that the time would come when medical science would find remedies for all diseases but cancer.

Dr. Galloway became a member of the Minnesota State Medical Society on February 1, 1870, and for seven years was an active member, serving on various standing and special committees, submitting reports on typhoid fever, intermittent fever, diphtheria and German measles, and giving occasional reports of unusual cases seen in his practice. When the society met in Rochester in June, 1872, Dr. Galloway was active in the proceedings. After 1876 his name did not appear on the roster.

Not long after his arrival in Oronoco Hector Galloway was married there to Clarissa Alice Paige, one of the nine children of Mr. and Mrs. Foster Paige, pioneer settlers from St. Albans, Vermont. Two other Paige daughters were married to men who at some time were associated with medicine in Olmsted County; Caroline was the wife of George B. Ayres, of Rochester, a student of medicine under Dr. Galloway and later a prominent physician of Omaha, Nebraska; and Augusta, of Dr. Charles E. Teel, who from 1865 to 1880 was a leading physician of Olmsted County resident in Eyota.

Dr. and Mrs. Galloway had one child, Lucretia (Lulu) Maria Galloway, a beautiful and talented girl, who was married in Rochester, in October, 1878, to Dr. John Henry Spaulding, a native of Maine who came to Rochester from Sauk Center, Minnesota, a dentist who studied under Dr. J. M. Williams, Rochester's earliest dentist. In 1879 Dr. and Mrs. Spaulding removed to Fargo, Dakota Territory; their only child, Hector Galloway Spaulding, was born in Fargo on August 2 of that year. In October, 1879, Dr. and Mrs. Galloway also settled in Fargo, and there Dr. Galloway entered practice; On March 16, 1886, he was licensed under the territorial medical practice law of 1885. After some years in successful practice and in profitable speculation in lands in Dakota and western Minnesota he removed with his wife, about 1890, to Tacoma, Washington.

The fortunes of Dr. and Mrs. Spaulding affected the lives of Dr. and Mrs. Galloway. In 1886 Dr. Spaulding with his wife and his son went to Paris, France, for graduate study (his son has said, on the advice and encouragement of Dr. W. W. Mayo), and there remained, achieving a distinguished career as practicing dentist and professor of operative dentistry at the "Dental School of France." He retired in 1917. During World War I he was associated with the American Hospital in Paris and also worked with the Red Cross, as a captain, in a rehabilitation hospital for American soldiers which was housed in a castle near Bordeaux. He died in Nice in March, 1938. Lucretia Galloway Spaulding preceded her husband in death by forty-seven years; when she died in Paris in March, 1891, her husband and her son brought her body to Minneapolis for burial in Lakewood Cemetery. After her daughter's death Mrs. Galloway embraced theosophy and psychial research and in her investigations over a period of years traveled alone into many countries. Later she studied osteopathy in Chicago and became a licensed osteopath in Iowa and South Dakota and elsewhere, until in 1921 she went to Washington, D. C., to make her home with her grandson.

Dr. Galloway in the autumn of 1894 came back alone to Rochester, renewed his membership in the county medical society, and here again practiced medicine until May, 1895, when he returned to Oronoco, after an absence of thirty-one years. Failing in health and fortune, for about two years he made Oronoco his headquarters, spending winters with Dr. and Mrs. Ayres in Omaha. In 1897 he returned to Fargo, and early in 1899 to his boyhood home in New York. Dr. Galloway died on March 4, 1899, at the home of his brother in Otto, New York. His body was brought for burial beside his daughter's grave in Lakewood Cemetery, Minneapolis. His wife, Clarissa Alice Paige Galloway, died in Washington, D. C., in February, 1922; her ashes rest beside the graves of her husband and her daughter.

It has been said of Dr. Galloway, "If one can leave such a memory as he left in Rochester, his life is a success, though he dies in poverty and on charity. He instinctively practiced the precept, 'What we do for ourselves dies with us; what we do for others lives and is eternal.' He may have felt without realizing it that he was the only textbook that some people would ever read."

In 1946 Dr. Galloway had two living descendants: a grandson, Hector Galloway Spaulding and a great-grandson, John Henry Spaulding, II. Hector G. Spaulding, whose career was of absorbing interest to the doctor, was educated at the Lycée Janson de Sailly in Paris; at the Minneapolis Central High School and the University of Minnesota; and the Harvard Law School, from which he was graduated *cum laude* in 1903. After ten years of practice of law in New York, Minnesota and Illinois he taught law at Stanford University. Since 1920 he has been professor of law at

George Washington University. He was married in 1922 to Augusta de Laguna of Oakland, California; Mrs. Spaulding, a graduate in law, was in 1945 a lawyer for the National Labor Relations Board. John Henry Spaulding, II, in that year was with the American Army of Occupation in Japan.

Eric Olonzo Giere (1868-1942) was the twelfth appointee, in 1892, as an assistant physician on the staff of the Second Hospital for Insane at Rochester.

Dr. Giere, an eminent physician and surgeon of Minnesota, died on February 12, 1942, in Minneapolis, after fifty years in active practice. Many detailed accounts of his career have been published: in state histories, in records of numerous medical organizations and, particularly, in MINNESOTA MEDICINE, at the time of his death, and in the chronicle of medicine in Dodge County by Eckman and Bigelow. The present notes serve to link him to Olmsted County.

Born near Deerfield, Dane County, Wisconsin, on April 10, 1868, Eric O. Giere was a son of Ole Nelson Giere and Inger Himle Giere, both of whom were natives of Norway. His great-grandfather, Erick C. Himle, had been a physician at Voss. Inger Himle came to America in 1846 and Ole Giere in 1850; they were married in this country and made their first home on a farm near Deerfield, Wisconsin. In 1869 they came to southern Minnesota and settled in Vernon Township, Dodge County, adjoining Rock Dell Township, Olmsted County; in this community Eric O. Giere spent his youth and obtained his early education at the district school of Rock Dell a mile from his home.

Immediately on graduation from the University of Minnesota College of Medicine and Surgery on June 2, 1892, Dr. Giere came on appointment to the state hospital at Rochester, where he served three months. On July 6, 1892, at a meeting at the office of Dr. H. H. Witherstine, he became a member of the Olmsted County Medical Society. While in Rochester, on October 7, 1892, he received his license, No. 273 (R) to practice medicine in the state. In Rochester the young physician, ethical and loyal, made friendships among the local profession that were to be lifelong.

On leaving Rochester to enter private practice, Dr. Giere was first in Madison, Lac Qui Parle County; and subsequently in Hayfield, Dodge County; again in Madison, for seventeen years; in Watertown, South Dakota; in Saint Paul from 1921 to 1927; and in Minneapolis from 1927 until his death. He was survived by his wife, four daughters and four sons. The three sons who became physicians, Richard Waldorf Giere, Joseph Christianson Giere and Carl Norman Giere were associated with their father in the Giere Clinic, in Minneapolis, and since his death have continued the work. During World War II Dr. C. N. Giere and Dr. J. C. Giere were captains in the United States Army Medical Corps.

(To be continued in October issue)

President's Letter

ARE YOU AN 18 PER CENTER?

After the unpredicted 1948 election results, some of the political leaders in Ohio decided to pick a typical county and study the returns in an attempt to ascertain how and why the balloting went as it did. What they found out was what political scientists have constantly observed: that a light vote is not a representative vote, nor, more important, is it analogous with the principles of "by the people" government.

They discovered that many "responsible" citizens were irresponsible concerning this vital obligation of citizenship—among them 18 per cent of the physicians of that county and 22 per cent of the physicians' wives. This happened in Ohio; undoubtedly its counterpart was experienced throughout the country.

From an unAmerican vote has evolved an unAmerican shift to security planning, over-government and a decline in traditional personal freedom and initiative.

Now we have an opportunity to rectify some of the mistakes and omissions we have made in the last few years. It is possible, through individual responsibility and freedom to avoid collective security and control. Now and in the immediate future, the nation will be subjected to tremendous ideological assaults. We must have state and national legislatures composed of honest alert intelligent senators and representatives, who will be quick to recognize threats to our way of life and government and will move to avert those evils.

Your vote and the votes of your family and friends may be the pivotal point upon which an election return will swing. And, from there the consequences widen out into almost unbelievable areas; what began as a simple task—the marking of an election ballot—could well be the most important contribution you have ever made to the cause of democracy and good government.

F. J. Elias.

President, Minnesota State Medical Association

◆ Editorial ◆

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

MORE PHYSICIANS IN SERVICE

WITH the onset of hositilities in Korea in June and the evident need for more fighting men, it became perfectly clear that Uncle Sam would need more medical officers. How many will eventually be needed is anyone's guess. The most equitable way of obtaining the additional medical personnel is a difficult problem to solve.

As has been frequently said those young physicians who have received their medical education at government expense have a moral, if not a legal obligation to enlist now that there is a pressing need. If all the members of this group were to enlist—an eventuality not likely to occur—the services would still need a certain number of reserve officers of experience in the various specialties and of various ranks.

By October 1, the Army will have recalled 1,582 reserve officers of the Army Medical Service, which will include 734 physicians. Recall quotas have been assigned to each of the six Army areas in the United States based on professional population rather than on the number of reserve officers in the area. Volunteers will be credited to the quota of the Army area in which they reside. To stimulate voluntary enlistment, medical officers who enlist will receive $100 a month above the usual pay for each rank.

Additional calls for enlistments in the near and and distant future will require additional professional personnel. To care for the 95,000 more men to be called to service in November an estimated 300 to 400 more doctors will be needed. More economy in the use of doctors in service than was evident in World War II will be employed; in the case of a 1000-bed general hospital only three physicians and two nurses will initially be called, the balance to stay in civilian life until receipt of warning orders for hospital deployment.

It is perhaps not surprising that enlistment of physicians has not supplied the need. Those who served in World War II and have only recently resumed private practice are naturally loath to pull up stakes and again don a uniform. Those who have never served have only a vague idea of the present and future need of their services. The present crisis does not have the appeal that a future need for an all-out effort may soon present.

It is not surprising that the AMA Board of Trustees went on record on August 12 approving the doctor-draft bills in principle. They, however, approve the drafting of physicians only for service in the war effort—not to care for veterans, civilian employes except outside the continental limits of the United States, or dependents of military personnel, except in case of dependents outside the country or in areas where adequate medical care cannot otherwise be provided.

To meet the present pressing need, Minnesota is required to furnish twenty reserve army doctors—a certain number of different ranks. Every effort is being made in the selection of these officers not to disrupt the civilian supply, nor intern, resident or postgraduate training. A committee of the Minnesota State Medical Association has been appointed to co-operate with the Military in order to cause as little disruption of medical training and practice as possible.

We may as well face the facts, however, that we must be strong in a military way, if we are to preserve our freedom and support the United Nations in its guarantee of the freedom of its member nations. A strong military force requires physicians.

BLOOD BANKS

THE EXTENT to which blood transfusion has come to be used therapeutically is strikingly brought out by the Survey of Blood Banks in the United States recently completed by the Bureau of Medical Economic Research of the American Medical Association under the direction of Frank G. Dickinson and Everett L. Welker.

At the time of this report, there were 1,648 blood banks located in 951 different cities in the country. In this number are included 1,571 hospitals, 46 non-hospital blood banks, and 31 Regional Red Cross Blood Centers. These centers have been increased from 31 to 34, according to last report. While about half of the hospital blood banks purchase blood and sell it to recipients, about two-thirds of these banks allow for replacement of blood from donors in lieu of payment for blood used. Some of the non-hospital blood banks make only nominal charges for the processing of the blood and count on voluntary donations of blood by members of civic groups for maintenance. The Red Cross Blood Centers do not purchase or sell blood and depend entirely upon donors for maintaining their supply. None of the centers administers blood, but distribution is free to hospitals which are allowed to make a nominal charge for handling. The cost of the processing and handling of the blood is borne by the Red Cross, which, of course, is supported by thousands of contributors.

The estimate of blood dispensed in a year is 2,532,452 units of 500 c.c. by the hospital banks, 306,130 units by the non-hospital banks and 427,565 units by the Red Cross. No estimate was made of the amount of plasma used. It is further estimated that all the blood banks and centers now have the equipment and personnel to bleed 5,500 donors simultaneously, or 440,000 in a forty-hour week. Thus the country seems pretty well supplied with facilities for obtaining and processing blood which can be easily expanded in case of an emergency. Possible future war need, of course, was in part responsible for the continuation of the Red Cross Centers. In case of a wide extension of the present Korean conflict, all the present facilities for handling blood would be vital.

The co-operation of the various agencies in Minnesota has been most satisfactory. Unfortunately, this has not been the case throughout the country. It is positively disgraceful that there should have been rivalry to the point of opposition between the American Association of Blood Banks and the Red Cross and that the Association has tried to put pressure on many State Medical Associations to instruct their AMA delegates to vote against approval of the Red Cross program. And this in spite of the precautions taken by the Red Cross of having the approval of the local medical societies before centers were established and in spite of the fact that in each state the program is controlled by a committee of the State Medical Association. The charge has been made that the Red Cross program smacks of socialized medicine. Since the program is supervised by medical societies and closely resembles in operation many of the independent blood centers, there would seem to be little excuse for the criticism. Fortunately, no resolution to discredit the Red Cross was even submitted to the meeting of the House of Delegates at San Francisco.

The wisdom of the establishment of the Red Cross centers would seem to be convincingly confirmed by the recent designation of the Red Cross as the official agency for the procurement of blood for the armed forces as in World War II.

Some ten years ago the Hennepin County Medical Society began discussing the possibility of establishing a central community blood bank in Minneapolis. Through the co-operation of a number of civic agencies, funds were collected, a building purchased and remodeled at 1914 LaSalle Avenue and on November 11, 1948, dedicated as a memorial to the service men of World War II who did not return. The bank began operating December 1, 1948, as the Minneapolis War Memorial Blood Bank. It is an independent non-profit organization. Blood is not bought or sold, and its supply is maintained in part by blood replacement on the part of relatives and friends of the recipients. Donor clubs have been formed, membership entitling the member and his family to free supply in case of need. The Center stocks the refrigerators of the hospitals of Minneapolis with various types of blood. A service fee only is charged for typing, Rh determination, and serology testing. The Minneapolis Blood Bank is willing to assist in setting up banks in neighboring communities with the approval of the local medical society and civic groups. How this was done in one specific instance is well told by Dr. Borgerson in the August issue of MINNESOTA MEDICINE (p. 773). Co-operation between such outlying centers and the Minneapolis War Memorial Blood Bank would be to mutual advantage.

Recently, arrangements have been made between the Red Cross Blood Center in Saint Paul and the Minneapolis War Memorial Blood Bank whereby an interchange of credit will be allowed between the two banks to patients entitled to blood from either bank. This example of a fine spirit of co-operation between two banks is highly commendable. After all, both institutions have the same purpose of providing a costly remedy, valuable in peace and war, at a nominal price within the reach of everyone.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

FSA CALLED SEED BED OF SOCIALISM

Beginning a new series on seed beds of socialism, a recent issue of *Nation's Business* calls the Federal Security Agency an "unknown visitor in the life and home of every American . . . well on its way toward changing the individual thinking as well as the social, economic and political structure of the nation."

Comparing it to other federal departments to convey the scope of the agency's control, the article says:

> "It reaches every citizen, either in benefits or in taxes. Among older departments, State is concerned with foreign affairs, Commerce with trade, Labor with workers and employers, National Defense with military security and Agriculture with one class of producers. Only Federal Security is all-embracing in its relation to the human beings who make the nation.
>
> "Other nations are solicitous for the welfare of their people from the cradle to the grave, but this agency goes farther. It gives prenatal advice for babies, guides them later through childhood, cares for workers and aged and succors the relicts of the departed."

Aim to Create Socialist State

Unpopular as the idea of socialism is, some of the key supporters of the agency and what it stands for have shamelessly confessed that its chief goal is to establish a welfare state:

> "Some of its key employes and ardent supporters have declared frankly the final goal of this pretentious agency is to abolish the present democratic form of government and to create a socialist state where officials will be dominant over the individual and his activities—in the home, in trade or in security—the attractive name so often used—while the youth are indoctrinated for the future."

The List Grows Longer

Helping this "all-embracing" agency to indoctrinate youth is a budget in 1950 which is larger than that of any other federal department except National Defense—$1,591,000,000. Its organization includes 35,363 full-time and 4,127 part-time workers; it has twelve regional offices and many National Institutes of Health and Health Workshops in cities and towns.

The number and variety of divisions and bureaus which it administers seems phenomenal, and, if the most ardent supporters of government control have their way, the list can extend almost endlessly. The Federal Security Agency administers Social Security which includes Public Assistance, Old-age and Survivors Insurance, the Children's Bureau, and Federal Credit Unions; Employes' Compensation; Public Health Service including quarantine and 20 odd hospitals; a printing house for the blind in Louisville; Food and Drug Administration; Vocational Rehabilitation, and the Office of Education. In Washington it operates two big public hospitals—St. Elizabeth's and Freedmen's—Howard University for Negroes, Gallaudet College and Kendall School for the Deaf.

Keynote Found

With these and many more institutions and agencies under its wing, and with an annual distribution of $1,000,000,000 to states, "FSA is in position to punish any state—almost any citizen—that dares to challenge any of its policies or directives." Looking through the manual of the Social Security Agency, the keynote of these policies is made clear:

> "Social security and public assistance are a basic essential for attainment of the socialized state envisioned in democratic ideology, a way of life which so far has been realized only in slight measure."

If this is "only in slight measure," Americans can well ask, "What is considered a completely full measure?"

CONGRESSMAN DISCUSSES SOCIALISM —AMERICAN VARIETY

Adding warning and emphasis to the example of the type of controls which the Federal Security Agency is slyly developing, Congressman Ralph W. Gwinn, New York, spoke at a meeting of the Medical Society of New York recently, quoting noted witnesses to testify that socialism is creeping surely into American life.

Mr. Gwinn quoted "America's greatest living Socialist, Norman Thomas," whose words underscore the fact that socialist trends are the greatest threat ever to come on the American scene. Running for the presidency since 1928, Mr. Thomas was somewhat pleased in 1936, after four years of the New Deal, that it "had in some fashion carried out our immediate demands."

Mr. Gwinn cited the words of Communist leader, Earl Browder, declaring that American capitalism can deteriorate into socialism, thence to communism, unless Americans are vigilant:

> "State capitalism leaped forward to a new high point in America in the decade 1939-1949. It became overwhelmingly predominant in every major phase of economic life, and changed the face of politics. State capitalism has progressed further in America than in Great Britain under the Labor Government, despite its nationalization of certain industries, which is a formal stage not yet reached in America; the actual, substantial concentration of the guiding reins of national economy in governmental hands is probably on a higher level in the U. S. A.
>
> "The general trend to state capitalism signifies a yielding of capitalist private ownership for more socialized forms of the economy and results in a more socially organized economy. . . . Each important measure of state capitalism is a part of the whole movement which results in the socialist transformation.
>
> "State capitalism is the invasion of planned production and points the way to Socialism. . . . The U. S. Government has emerged as the greatest trust of all, the super-trust whose economic operations dwarf the largest private corporation. . . . The trend to state capitalism marked the final monopolistic stage. After monopolistic capitalism the only higher stage possible is the fully-socialized society."

And, the late leader of British Socialists, long noted for his authoritative statements on socialism and what causes it, was also quoted by Mr. Gwinn. Harold J. Laski says:

> "Since it is the Socialist belief that the central principles of the New Deal have come to stay, the Socialist Government in Britain can have the confidence that America will advance in a collective direction and at an increasing tempo."

Another of the greatest contemporary authorities on the subject of economic socialism and communism has declared that leftist policies are more evident in America than in western Europe. John Strachey, England's War Minister, helps Mr. Gwinn's argument by saying:

> "Outside the United Kingdom and the Scandinavian countries, the U. S. Administration today is probably more to the left in general economic policy and point of view than any of the governments of western Europe."

The "Scare Words" Again

Supporters of federal medicine, increasing social security and the whole gamut of expanding government control measures can ridicule the use of such terms as the "welfare state" and "socialism" by calling them mere "scare words," like President Truman did, not long ago. Many of them would think twice after reading a new booklet written by former Senator Joseph H. Ball entitled "Where Does Statism Begin?" The pamphlet points out that the welfare state is a state in which the government assumes and tries to carry out the responsibility of assuring a certain standard of living and economic security for everyone in terms of housing, food, clothing, health services and education, regardless of the individual's age, ability, productive effort or moral deserts."

Words which have gained new definitions through common usage receive comment in the pamphlet:

> "Statism is the concentration of more and more power in the hands of government as an inevitable result of trying to substitute government planning of production, distribution, and pricing for the free market mechanism of capitalism.
>
> "Socialism, welfare state and statism are interchangeable to this extent: their political and economic promises can't be carried out without new and extensive concentration of power in the hands of the central government."

Defining Not Enough

Individual Americans, states *New York Medicine* recently, will realize that mere definition of words is only the beginning of understanding:

> "There is a price tag on human liberty and freedom in any human endeavor. That price is the willingness to assume the responsibility of being free men. Payment of this price is a personal matter with each of

us. It is not something we can get others to pay for us. There is a very human impulse to let others carry the responsibility of freedom, and the work and worry that accompany it—while we share only in the benefits!

"In these present days, power is, wittingly or unwittingly, conferred by a people upon others. Ofttimes it appears as if this power were forcibly wrested away, but it is not. People give their freedom away. By vote we give away our hard-won rights. Factors, which bring a change, most frequently go unnoticed because of apathy. Only when an evil is firmly entrenched do we become aware of its insidiousness. While an evil is quietly and unobtrusively establishing itself, people go about their business, performing their daily tasks saying: 'This can't do that to us,' and all the time it is being done . . . right under their noses!"

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

230 Lowry Medical Arts Building

Saint Paul, Minnesota

Julian F. Dubois, M.D., Secretary

MINNEAPOLIS MAN PAYS $100 FINE FOLLOWING CONVICTION FOR VIOLATING FEDERAL FOOD, DRUG AND COSMETIC ACT.

Re. United States of America vs. Otto W. Dressler, an individual trading as Gold Seal Laboratories.

On June 12, 1950, Otto W. Dressler, seventy-two years of age, 204½ 10th Street South, Minneapolis, paid a fine of $100 in the United States District Court at Minneapolis, following his conviction by the Hon. M. M. Joyce, of violating the Federal Pure Food and Drug Act. Dressler was convicted of "having unlawfully shipped in interstate commerce a certain device, to-wit, Polizer, in violation of the Federal Food, Drug and Cosmetic Act, in that said device was misbranded within the meaning of 21 U.S.C. 352 (a)." The information filed by the Government alleged that accompanying the device was a circular entitled: "The Pol-izer (Miracle of the Age) Why Suffer." The information also alleged that the statement represented and suggested that Polizer was efficacious in the cure and treatment of over 60 ailments from arthritis to heart trouble. It was the contention of the Government that the device was misbranded because it was not in fact efficacious in the treatment of such ailments.

In finding Dressler guilty, Judge Joyce stated that expert witnesses of the highest rank in the State of Minnesota had studied and tested the device and found it wholly useless and of no therapeutic value. Judge Joyce further stated that not one scintilla of evidence was produced by the defendant that there is any penetration into the human body of any of the so-called elements of the Polizer or of polized water.

The case was tried for the Government by Mr. Clifford Hansen, Assistant United States Attorney of Saint Paul. The preliminary work in the case was done under the direction of Mr. Chester T. Hubble, Chief, Minneapolis District Pure Food and Drug Administration.

MINNEAPOLIS WOMAN SENTENCED FOR CRIMINAL ABORTION

Re. State of Minnesota vs. (Mrs.) Val A. Ramer.

On August 22, 1950, Mrs. Val A. Ramer, seventy-six years of age, 809 Douglas Avenue, Minneapolis, was sentenced by the Hon. Rolf Fosseen to a term of not to exceed three years in the Women's Reformatory at Shakopee, Minnesota. Mrs. Ramer had entered a plea of guilty on June 6, 1950, to an information charging her with the crime of abortion. Mrs. Ramer also admitted a previous conviction in 1936. Because of the defendant's age, Judge Fosseen suspended the sentence and placed the defendant on probation for a period of five years. Judge Fosseen warned Mrs. Ramer that not even her age would save her from going to the Women's Reformatory if she became involved, in any manner, in any further violation of the laws of the State of Minnesota.

Mrs. Ramer was arrested on May 4, 1950, by Minneapolis police officers following the hospitalization of a twenty-one-year-old Minneapolis woman suffering from the aftereffects of a criminal abortion. The Minnesota State Board of Medical Examiners was asked to assist in the case and legal counsel for the Medical Board obtained a signed statement from Mrs. Ramer in which she admitted having performed the abortion by means of a probe and packing the cervix with gauze. Mrs. Ramer also admitted receiving $150 for her services. The abortion was performed in Mrs. Ramer's apartment. Mrs. Ramer also admitted that she had performed other abortions averaging about one per month. Mrs. Ramer was convicted by a jury in the District Court of Hennepin County on April 24, 1936, of the crime of abortion. At that time, a Minneapolis physician, now deceased, was also convicted with Mrs. Ramer. Mrs. Ramer holds no license to practice any form of healing in the State of Minnesota.

BERYLLIOSIS

(Continued from Page 907)

clinician. Failure to recognize the cause of the trouble and failure to remove the patient from further exposure may result in irreparable damage to his health or cause his death.

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HEALTH RESOURCES ADVISORY COMMITTEE

Dr. Harold S. Diehl, dean of the medical sciences at the University of Minnesota, has been named to the new Health Resources Advisory Committee of the National Security Resources board. The appointment was made by W. Stuart Symington, chairman of the board.

Purpose of the committee is to assist and advise the National Security Resources board on problems of the nation's health relating to national mobilization and in the event of an atomic war.

The commitee also may be given the added responsibility of advising Selective Service in the drafting of doctors.

Dr. Diehl attended a meeting of the committee in Washington Thursday and Friday, September 7 and 8.

American Medical Association

House of Delegates—Summary of Proceedings

San Francisco—June 26-30, 1950

First Meeting, Monday, June 26

Morning Session

The House of Delegates convened in the Concert Room of the Palace Hotel, San Francisco, and was called to order at 10 a.m. by the Speaker, Dr. F. F. Borzell.

After preliminary proceedings including adoption of the minutes of the interim session, roll call, appointment of a Vice Speaker pro tem, in the absence of the Vice Speaker, invocation and the appointment of tellers for the session, the House heard the address of the speaker giving general directions for reference committees and delegates. He then presented the reference committees to the House.

The House then chose Dr. Everts A. Graham, St. Louis, as the recipient of the Distinguished Service Award for 1950. This was followed by the address of President Ernest E. Irons who summed up the progress made against infiltration of socialistic trends by saying, "We as physicians and citizens shall not relax until, with other patriotic groups in business, on the farm, in the other professions and labor, we shall have rolled back the socialist flood that threatens to engulf our American freedom and our solvency."

The Chairman of the Board of Trustees, Dr. Louis H. Bauer, presented the report of the Board. Ordinary income in 1949 exceeded costs and expenses by $106,817.56; this amount was credited to the capital account of the Association, which now totals $4,240,197.81.

The report of the Board of Trustees also included reports of, and concerning, the Committee on Displaced Persons, Committee on General Practice, Council on National Emergency Relief, Student American Medical Association, Commission on Chronic Illness, Co-ordination Committee on Legislation, Treasurer, Auditor.

All recommended resolutions were referred to reference committees.

Dr. Elmer L. Henderson, chairman of the co-ordinating Committee, presented the report of his committee.

This was followed by the report of the Council on Medical Service, given by Dr. James R. McVay.

Dr. Harvey B. Stone, acting chairman, presented the report of the Council on Medical Education and Hospitals.

The House recessed at 12:30 p.m.

Afternoon Session

The House reconvened at 1:45 p.m. and heard a supplementary report of the Board of Trustees, read by Dr. Bauer, which included the report of the Committee on Hospitals and the Practice of Medicine.

This was followed by a Report of the Committee on Chronic Diseases. In view of the work of the Commission on Chronic Illness, there had been suggestions that the functions and work of the two bodies had been overlapping. After hearing evidence of the necessity of both bodies, the House voted continuance of the committee.

The House then heard the proposed resolutions, all of which were referred to their respective reference committees for study and such committees will report the resolutions to the House for approval or rejection.

The House recessed at 3:45 p.m.

Second Meeting, Tuesday, June 27

Afternoon Session

The meeting convened at 1:20 p.m. The House adopted a report of the Committee on Executive Session, which stated that an executive session to discuss a resolution on expenditure for advertising was not necessary.

Dr. Bauer read a message wishing the House a successful meeting from Dr. T. C. Routley, Secretary General of the Canadian Medical Association. The House requested the Secretary to wire appreciation to Dr. Routley.

The House recessed at 1:30 p.m.

Third Meeting, Wednesday, June 28

Morning Session

The meeting reconvened at 9:10 a.m. The House adopted the report of the Reference Committee on Reports of Officers which included a recommendation from the Speaker's address that an interim committee on constitution and by-laws be appointed.

The House adopted a resolution eliminating oral reading of its voting, substituting the use of tellers' reports directly to the speaker who then announces the vote.

The House next considered the report of the Reference Committee on Reports of the Board of Trustees and Secretary. The report of the Board was considered by section:

Section 1. Financial statement—approved.

Section 2. Committee on Displaced Physicians—approved.

Section 3. Student American Medical Association—approved and established.

Section 4. Survey of Physicians' Incomes—approved with minor amendments.

Section 5. Surveys of Medical Education and Medical Practice in Great Britain—approved with commendation.

Section 6. Hearings on Taft and Hill Bills—approved.

Section 7. Resolution on Free Choice of Physicians for Federal Employes—approved recommendation for more study and information.

Section 8. Expansion of Washington Office—approved action to increase efficiency and continue implementation.

Section 9. Bulletin for Woman's Auxiliary—approved cancellation of bulletin.

Section 10. Treasurer's and Auditor's reports—approved.

Section 11. Quality of Medical Care in a National Health Program—approved Board's action in expressing strong opposition to the socialist blueprint for medical care of the recommendations of the Subcommittee on

Medical Care of the Committee on Administrative Practice of the American Public Health Association.

Section 12. Resolutions on Medical Care of Veterans —approved statement that this resolution reaffirms previous similar resolutions of the House in opposing unjustified care being given to non-indigent veterans for non-service-connected disabilities.

Section 13. Resolutions on Purveyal of Medical Service, Resolutions on Report of Committee on Hospitals and the Practice of Medicine, Resolutions on Enforcement of Principles of Medical Ethics and Resolutions on Practice of Medicine by Hospitals—approved all these resolutions having to do with the purveyal of medical services and the practice of medicine in hospitals.

Section 14. Report of the Committee on Hospitals and the Practice of Medicine—approved report which provides that if a physician is found to be unethical through proper authorities and is still retained on the staff of any hospital approved for resident or intern training, it shall be the duty of the Judicial Council to show cause why hospital should not be removed from the approved list, assuming the hospital is just as unfit for the training of physicians for unethical reasons as it is unfit if it does not have proper filing systems. The report also recommended recognition of the practice of anesthesiology, pathology, physical medicine and roentgenology as practice of medicine.

The House next considered the report of the Reference Committee on Medical Education which was adopted as a whole and recommended that particular specialties in which residents are being trained should be represented on the staff by well qualified people, whether or not they are members of "special societies and colleges or are certified in their specialty"; that it is not essential that all hospital residencies should adopt the same program, but it is essential that all hospitals participating in graduate training be able to meet fundamental essential requirements; that attendance at hospital staff meetings is not mandatory; that state medical societies be urged to use their influence with various state boards to give proportionate consideration to pediatrics as is given to other fields of medicine; that the practice of some hospitals making specialty board ratings a requirement for appointment or promotion be disapproved.

At this time Dr. Bauer announced that the Board of Trustees had extended the contract of Whitaker and Baxter for another year, stating, "We have very great hopes that we can carry on in a very greatly reduced tempo from what we have during the past year. On the other hand, we feel that it would be a great mistake to break up our organization which we have established and which has been so successful, because we don't know what may happen."

The House of Delegates heard the report of the Reference Committee on Sections and Section Work. The resolution requesting an appropriation for section delegates was referred to the Board of Trustees. The House approved recommendation that the Council on Scientific Assembly consider creation of a Section on Military Medicine and Surgery and a Section on Medicine in Industry.

The House next considered the report of the Reference Committee on Amendments to the Constitution and By-Laws and approved appointment of an Interim Committee of the House of Delegates on Amendments to the Constitution and By-Laws; setting amounts of annual dues at the annual meeting; giving the Board of Trustees specific authority with respect to remission of membership dues; allowing Associate Fellows privilege to participate in the Scientific Assembly, without the right to vote or hold office; allowing member or service fellows, active members, associate, affiliate or honorary fellows, invited guests, medical students of approved schools, and interns and residents of approved hospitals to register.

The House next heard the report of the Reference Committee on Hygiene and Public Health and approved resolutions providing earlier detection of diabetes through self-testing for sugar; and earlier detection of cancer through use of all recognized facilities for the initial diagnosis, including examination of tissues, exudates and bodily excretions.

The House approved the resolution on Medical Relations in Workmen's Compensation reported by the Reference Committee on Industrial Health, providing: that the Council on Industrial Health investigate the present status of medical relations under the Workmen's Compensation laws of the states, territories and federal government and report back to the House of Delegates in June, 1951.

The House recessed at 12 noon.

Afternoon Session

The House reconvened at 2:05 p.m. and considered the report of the Reference Committee on Legislation and Public Relations. The House approved a resolution opposing H.R. 5865, declaring "that it would place local health units in the country under substantially direct and complete control of the Surgeon General of the Public Health Service"; opposing again S. 1411 as long as Section C still remains in the bill. The House approved the committee's opinion that, as a general principle, the American Medical Association should not take a position favoring or opposing legislation which does not bear directly on medicine; approved expansion and strengthening of the Washington office; approved appointment of a committee to study the 12-Point program with the idea of making changes which may be indicated.

The House approved the report of the Committee on Training of Interns which recommended the inauguration of a 2-year rotating internship program covering the main branches of medicine, surgery, obstetrics and gynecology.

The House heard the report of the Reference Committee on Emergency Medical Service and approved a resolution urging immediate passage of Federal and state enabling legislation for a civil defense organization; a resolution urging appointment of a medical advisory committee to function at the top level of the Chairman of the National Security Resources Board.

The House next considered the report of the Reference Committee on Miscellaneous Business and approved resolutions providing better co-ordination of scheduling American Medical Association council meetings; continuation of National Education Campaign, endorsing work of the World Medical Association; declaring as ethical for members to engage in lectures, demonstrations, the preparation of pamphlets and other measures suitable for the dissemination of information designed to prevent blindness and directed to any non-medical groups.

The House then heard the report of the Committee on Veterans Affairs. The resolution to recommend more stringent rules regarding treatment of non-service-connected illness was tabled.

Dr. Bauer explained an additional change necessary in the By-Laws concerning payment of dues and Fellowship classification, which was laid over for twenty-four hours to be brought up at the next meeting. Dr. Bauer also announced that the Clinical Session will be held in Cleveland, December 5 to 8.

The House then considered the report of the Reference Committee on Insurance and Medical Service. The House approved the report which provided recommendations of expansion of medical prepayment plans for graduate nurses; recommendation for further extension of service-connected medical care for veterans through existing channels and home-town medical programs; recommendation to the Council on Medical Service that detailed procedural directions be given for action on the local level; approval of the work of the Commission on Chronic Illness.

The House recessed at 4:10 p.m.

Fourth Meeting—Thursday, June 29

Afternoon Session

The House reconvened at 1:30 p.m. and heard the report of the Reference Committee on Emergency Medical Service and approved a resolution recommending continued co-operation with the medical services of the Armed Forces and the National Security Resources Board to the end that the most effective utilization of medical personnel be achieved for the maximum protection of the nation.

The House adopted an amendment to the By-Laws providing that dues shall include subscription to *The Journal of the American Medical Association* beginning January 1, 1951.

The proposed change in the By-Laws regarding classification of fellows was referred to the Interim Committee on Amendments to the Constitution and By-Laws for study and report at the Clinical Session in Cleveland.

The House approved membership dues for 1951 at $25.00.

The House instructed the Secretary and General Manager to have the report of the Reference Committee on Reports of Board of Trustees and Secretary mimeographed and mailed to each member of the House of Delegates at the earliest possible time.

The House passed a resolution requesting the Board of Trustees to expedite adequate appropriations by the Congress to help control tuberculosis among the Indians.

The House heard the address of Rear Admiral Joel T. Boone, United States Navy.

The election of officers followed:

President-Elect—John W. Cline, M.D., San Francisco, California.

Vice President—R. B. Robins, M.D., Camden, Arkansas.

Secretary—George F. Lull, M.D., Chicago.

The House heard addresses by Dr. Cline and Dr. Robins and then elected Dr. Josiah J. Moore, Chicago, as Treasurer, and Dr. F. F. Borzell, Philadelphia, as Speaker, both succeeding themselves.

Dr. James R. Reuling, Bayside, N. Y., was elected Vice Speaker.

The House elected two new trustees: Dr. Thomas P. Murdock, Meriden, Conn., to succeed Dr. James R. Miller, Hartford, and Dr. L. W. Larson, Bismarck, N. D., to succeed Dr. John H. Fitzgibbon of Portland, Oregon.

The speaker appointed the following as members of the Interim Committee on Amendments to the Constitution and By-Laws: Drs. Joseph D. McCarthy, Omaha; Floyd S. Winslow, Rochester, N. Y.; B. E. Pickett, Sr., Carrizo Springs, Texas; Louis A. Buie, Rochester, Minn., and Stanley H. Osborn, Hartford, Conn.

Dr. Bauer announced that the annual session for 1951 will be held in Atlantic City, N. J., and that the 1952 session will be held in Chicago. The House heard the invitation of New York City, given by Dr. J. Stanley Kenney, to hold the 1953 session there. Ballots were spread.

Dr. Louis A. Buie, Rochester, Minn., was elected to succeed himself for five years as a member of the Judicial Council, Dr. J. B. Lukins, Louisville, Ky., was also elected a member.

Dr. Edgar V. Allen, Rochester, Minn.; Dr. James Stevenson, Tulsa, Okla., and Dr. Julian P. Price, Florence, S. C., were appointed as members of the Committee on Distinguished Service Awards, Dr. Allen as chairman.

Dr. Henry R. Viets, Boston, was elected to succeed himself as a member of the Council on Scientific Assembly and Dr. Russell L. Haden, Crozet, Va., was elected to succeed himself as a member of the Council on Medical Education and Hospitals.

Dr. George F. Lull, Secretary, presented the names of applicants for Associate Fellowships. Minnesota Associate Fellowships were granted to: Nellie O. N. Barsness, St. Paul; Edgar D. Brown, Paynesville; Frank D. Gray, Marshall; J. C. Hultkrans, Minneapolis; Oscar F. Mellby, Thief River Falls; F. P. Strathern, St. Peter.

The House voted, by plurality, that the annual session for 1953 be held in New York City.

Dr. James R. McVay, Kansas City, Mo., was elected by acclamation to succeed himself on the Council on Medical Service, and the ballot was spread to elect a successor to Dr. Jesse D. Hamer, Phoenix, Ariz.

Dr. Bauer introduced Dr. Pedro Nogueira, Secretary of the Cuban Medical Association, who brought greetings from his country, and Dr. José Angel Bustamante, Secretary of the Pan-American Medical Association, who also brought greetings.

The House passed a resolution of appreciation to the State of California, the San Francisco County Medical Association and the California Medical Association, and a resolution of appreciation to the city of San Francisco.

Dr. Jesse D. Hamer was elected to succeed himself as a member of the Council on Medical Service.

The House of Delegates to the American Medical Association adjourned at 3:30 p.m.

"**AMINOPHYLLIN** shares the actions and uses of other theophylline compounds, over which it has the advantage of greater solubility. It is useful as a diuretic and myocardial stimulant for the relief of pulmonary edema or paroxysmal dyspnea of congestive heart failure. . . . Aminophyllin is also useful in the control of Cheyne-Stokes respiration and for the treatment of paroxysms of bronchial asthma or status asthmaticus."

Council on Pharmacy and Chemistry: New and Nonofficial Remedies, 1949, Xanthine Derivatives, Philadelphia, J. B. Lippincott Company, 1949, p. 323.

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✦ Reports and Announcements ✦

AMA CLINICAL SESSION

The fourth clinical session of the AMA, designed primarily for the general practitioner, will be held in Cleveland, December 5 through 8. The scientific sessions and the scientific exhibits will be presented in the Cleveland Municipal Auditorium. The House of Delegates will meet at the Statler Hotel.

Outstanding clinical teachers will appear on the program. Clinical sessions will be limited to an attendance of 100 physicians. Obstetric, pediatric and geriatric problems, traumatic surgery, cancer and diabetes will be among the subjects of interest to the general practitioner which will be discussed. This midyear meeting aids the general practitioner in keeping abreast of medical progress.

AMERICAN COLLEGE OF CHEST PHYSICIANS

The fifth annual Postgraduate Course in Diseases of the Chest, sponsored by the Council on Postgraduate Medical Education and the Illinois State Chapter of the American College of Chest Physicians, with cooperation of the members of the staffs of the medical schools and hospitals of Chicago, will be held at the St. Clair Hotel, Chicago, October 16 through 20.

Addresses on medical and surgical phases of chest diseases will be given at the morning and afternoon sessions, with round-table discussions each noon. The evening of October 19 will be given over to a banquet, to be followed by a meeting of the Illinois chapter of the College.

The number of registrants for the course is limited. Applications, with a remittance of $50, should be sent to the American College of Chest Physicians, 500 North Dearborn Street, Chicago 10, Illinois.

AMERICAN COLLEGE OF PHYSICIANS

The Midwest Regional Meeting of the American College of Physicians will be held at the Memorial Union Theatre on the campus of the University of Wisconsin in Madison, Wisconsin, Saturday, November 18, 1950. Physicians of Minnesota, Illinois, Indiana, Iowa, Ohio, Michigan and Wisconsin, whether members of the College or not, are urged to attend.

Registration at 8 A.M. will be followed by fifteen-minute papers on a wide variety of medical subjects, the afternoon session terminating at 5 P.M. A social hour follows at 5:30 P.M. In addition, a scientific exhibit will be presented in the foyer of the Memorial Union Theatre.

For further information, address Dr. H. M. Coon, 1300 University Avenue, Madison 6, Wisconsin.

AMERICAN COLLEGE OF SURGEONS

A sectional meeting of the American College of Surgeons will be held in St. Louis on January 22 and 23. All physicians who wish to attend are invited. A registration fee of $5 for nonmembers can be expected. Minnesota is included among the midwestern states in the section of the country for which this meeting has been arranged.

Headquarters will be at Hotel Statler, and an extra day of operative clinics will be conducted in addition to the two days of addresses. Further information can be obtained from Dr. Barrett Brown, 400 Metropolitan Building, Grand Avenue and Olive Street, St. Louis 3, Missouri.

NATIONAL GASTROENTEROLOGICAL ASSOCIATION

The National Gastroenterological Association will hold its fifteenth annual convention and scientific sessions at the Hotel Statler in New York City, October 9 through 11.

At the annual banquet of the Association, to be held at the Hotel Statler on October 10, the winner of the National Gastroenterological Association 1950 Prize Award Contest for the best unpublished contribution on gastroenterology and allied subjects, will receive the prize of $100 and a certificate of merit.

Immediately following the convention, the Association is conducting a course in postgraduate gastroenterology at the Hotel Statler in New York City on October 12 through 14.

Further information concerning the program and details of the course may be obtained by writing to the Secretary, National Gastroenterological Association, 1819 Broadway, New York 23, N. Y.

VAN METER PRIZE AWARD

The American Goiter Association again offers the Van Meter Prize Award of $300 and two honorable mentions for the best essays submitted concerning original work on problems related to the thyroid gland. The award will be made at the annual meeting of the Association which will be held in Columbus, Ohio, May 24, 25 and 26, 1951, providing essays of sufficient merit are presented in competition.

The competing essays may cover either clinical or research investigations, should not exceed three thousand words in length, must be presented in English, and a typewritten double spaced copy in duplicate sent to the Corresponding Secretary, Dr. George C. Shivers, 100 East Saint Vrain Street, Colorado Springs, Colorado, not later than March 1, 1951. The committee who will review the manuscripts is composed of men well qualified to judge the merits of the competing essays.

A place will be reserved on the program of the annual meeting for presentation of the Prize Award Essay by the author, if it is possible for him to attend. The essay will be published in the annual Proceedings of the Association.

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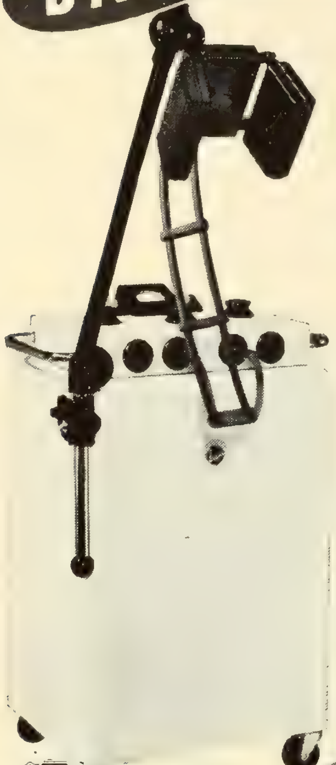

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MINNESOTA PUBLIC HEALTH CONFERENCE

Physicians and health officers of Minnesota municipalities will meet on September 25 and 26 in the Hotel Nicollet in Minneapolis to discuss general sanitary problems of municipalities. This meeting is being held in conjunction with the fourth annual meeting of the Minnesota Public Health Conference, an organization with a membership of over 600 lay and professional health workers in Minnesota.

Authorities on sanitary problems will join with the health officers and physicians in discussions of municipal solutions of waste disposal, rodent control and other problems. The conference is also featuring a second day full program of interest to physicians. Mary Switzer of the Federal Security Agency will report on the activities of the World Health Organization. A general afternoon session features a discussion of health problems in industry, the use of mass media to get a message across to people, and techniques used in social welfare to win public support of the programs. The banquet session of the program features an address by Dr. William Sheppard of the Metropolitan Life Insurance Company, who is president elect of the American Public Health Association.

All physicians and health officers in Minnesota are invited to attend the two-day program which brings together all health interests in Minnesota.

CONTINUATION COURSES

Cortisone and ACTH.—The University of Minnesota announces a continuation course for physicians on cortisone and ACTH to be presented at the Center for Continuation Study on October 4.

Subject matter for the course will include pituitary adrenal interrelationships, the alarm reaction, and tests of adrenal cortical function. The use of cortisone and ACTH in allergic states, rheumatic fever, rheumatoid disease, and eye disorders will highlight the therapeutic section of the course.

Faculty for the course will include members of the staffs of the Mayo Clinic and the University of Minnesota Medical School.

Medical Technologists.—The University of Minnesota announces a continuation course for medical technologists on October 10 and 11. The course will be presented at the Center for Continuation Study and will be devoted to problems in clinical chemistry. Among the subjects to be discussed will be the reliability and validity of methods in clinical chemistry, the use of the flame photometer and spectrophotometer, technique and interpretations of liver function tests, plasma protein determination, and serum cholesterol determination, techniques, and interpretation. The visiting faculty member for the course will be Dr. Olaf Michelsen, biochemist of the Division of Chronic Disease of the United States Public Health Service. Members of the faculty of the University of Minnesota will complete the staff for the course. Graduates in technology are eligible to attend.

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POSTGRADUATE SEMINARS

Two preliminary planning meetings for the conduct of professional postgraduate seminars were held recently. On July 26 members of the different professions, as well as interested lay persons, met at the St. Francis Hospital, Crookston, to discuss plans for the forthcoming seminar.

Dr. R. O. Sather of Crookston, secretary of the Red River Valley Medical Society, and Dr. O. K. Behr, also of Crookston, represented the local medical profession.

Dr. R. E. Siman and Dr. H. F. Jung were there representing the dental group. Miss Margaret Sherman, Miss Ruby Gregerson, Miss Blanche Ingvalson, Mrs. Eva Brown, and Miss Ida Twedten were from the nursing profession.

Dr. George N. Aagaard, director of postgraduate medical education at the University of Minnesota; Mr. Thomas A. Morrow, executive secretary of the Minnesota Heart Association; Dr. William A. Jordan, director, Division of Dental Health, and Mr. E. W. Eagle, pharmacist in Crookston, were also present. Sister Mary Charitas, as administrator, represented St. Francis Hospital.

The Crookston seminar, scheduled for September 13 to November 1, is a joint undertaking of the University of Minnesota Medical School, the Minnesota State Medical Association, and the Minnesota Department of Health. It is one of six planned for Minnesota communities during the 1950-51 season.

On July 27 a similar planning meeting for a seminar to be held at Virginia was conducted at the Virginia Municipal Hospital. This seminar, with the same sponsors, will start September 21 and end November 9.

Dr. J. A. Malmstrom, president, Range Unit of the St. Louis County Medical Society; Dr. E. N. Peterson, chief of staff, Virginia Municipal Hospital; Dr. R. P. Pearsall, city health officer, Virginia, Minnesota; and Dr. N. M. Strandfjord represented the physicians. Dr. L. C. Krause represented the dental profession.

Mrs. Inez Christen, president, Tenth District Minnesota Nurses Association; Mrs. Madeline Takala, St. Louis County public health nurse, Virginia; Miss Esther Hakko, St. Louis County public health nurse, Virginia; and Mrs. Barbara Rodorigo, St. Louis County P.H.N., Virginia, Minnesota, were present for the nursing group.

Dr. George N. Aagaard, Mr. Thomas A. Morrow, Dr. William A. Jordan, and Mr. Charles C. Crosby, pharmacist from Virginia, were present. Mr. John Alexon, superintendent, represented the Virginia Municipal Hospital.

The other seminar areas, together with approximate attendance dates in 1951 are:

Moorhead	January 3 to February 21
Willmar	January 11 to March 1
Worthington	March 6 to April 24
Albert Lea	March 14 to May 2

(Continued on Page 940)

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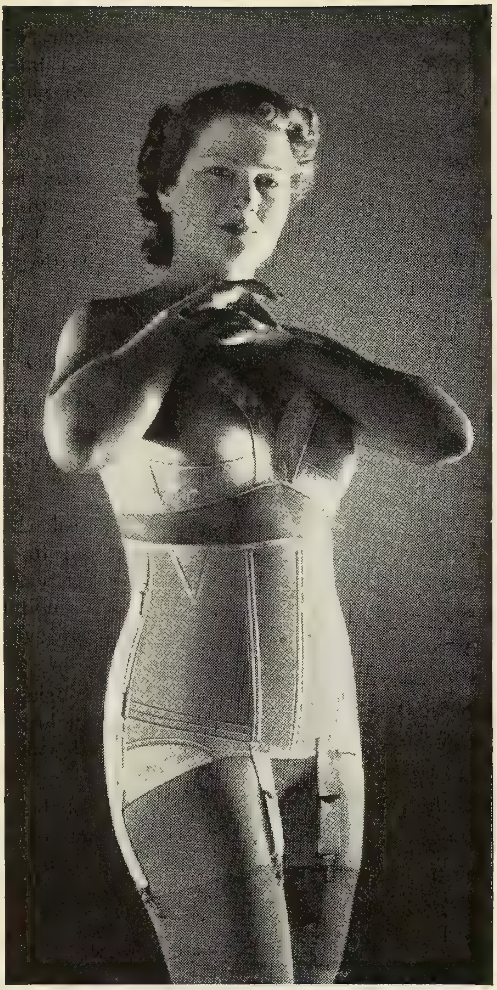

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POSTGRADUATE SEMINARS

(Continued from Page 938)

The seven courses held throughout the state in 1949-50 were extremely well received, and professional attendance and interest was excellent.

Heart disease, cancer control and mental health will be the subjects of this year's programs. Latest information on the diagnosis, treatment, and management of diseases in these three fields will be presented by leading medical lecturers from the University of Minnesota Medical School. Professional films and literature will in some instances be used to augment the speakers.

Each seminar, as last year, will consist of eight consecutive weekly meetings, with each session about two hours long. Ordinarily two speakers, each on a different subject matter, will appear.

There is no charge for this series of lectures unless local physicians voluntarily assess themselves $2 each to obtain a certificate of attendance.

County medical societies are actively co-operating in the organization and conduct of these significant medical education events.

Coinciding with these medical seminars, dentists and nurses of the area will hold eight sessions of their own, patterned generally after the physician's courses, with subject matter tailored to their specific interests. The University of Minnesota Schools of Dentistry and Nursing, the Minnesota State Dental Association, the Minnesota State Nurses Association, and local dental and nursing groups sponsor the seminars.

Other co-sponsors of the seminars are the Minnesota Division of the American Cancer Society, the Minnesota Heart Association, and the Minnesota Mental Hygiene Society.

LYON-LINCOLN MEDICAL SOCIETY

The forty-second semi-annual clinic course of the Lyon-Lincoln County Medical Society began on September 5 and will end on October 10. All meetings are held at the New Atlantic Hotel in Marshall and begin with dinner at 6:30 p.m. The program for the course is as follows:

Sept. 5—"Diagnosis and Treatment of Head Injuries"—Dr. Wallace P. Ritchie, Saint Paul.

Sept. 12—"Some Practical Aids in Prolonged Labor"—Dr. E. A. Banner, Rochester.

Sept. 19—"Psychosomatic Medicine"—Dr. Gordon Kamman, Saint Paul.

Sept. 26—"Emergency Surgery of the Abdomen"—Dr. O. H. Beahrs, Rochester.

Oct. 3—"Cardiovascular Renal Emergencies"—Dr. T. W. Parkin, Rochester.

Oct. 10.—"Rheumatic Fever in Children with Special Emphasis on the Differential Diagnosis"—Dr. Albert Stoesser, Minneapolis.

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1. Beckman, H.: Treatment in General Practice. Philadelphia, Saunders, 5th ed., 1946, 704-705.
2. Beckman, H.: Treatment in General Practice. Philadelphia, Saunders, 6th ed., 1948, 744.

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In Memoriam

FRANK J. BRABEC

Dr. Frank J. Brabec, a practitioner at Perham, Minnesota, since 1893, died July 29, 1950, at the age of eighty-one.

Dr. Brabec was born at Watertown, Minnesota, January 31, 1869. He received his medical degree from the University of Minnesota in 1893. After graduation, he took his internship at Asbury Hospital, Minneapolis, and St. Joseph's Hospital, Saint Paul. On his return trip from Butte, Montana, where he had accompanied Dr. Charles Wheaton of Saint Paul to assist in an operation on Senator Carter of Montana, the train was delayed at Perham and Dr. Brabec was so impressed with the surrounding country that he decided to practice there.

Dr. Brabec was instrumental in persuading the Franciscan Sisters to establish a hospital at Perham. He also donated a farm to the village for the benefit of a library addition.

Dr. Brabec is survived by his wife; two sons, Dr. Leonard Brabec, an educator in New York, a child by his first wife who died a number of years ago, and Dr. Paul Brabec of Forsythe, Montana, and a daughter, Katheryn, of Saint Paul.

He was a former member of the Park Region Medical Society, the Minnesota State Medical Association and the American Medical Association.

KENNETH G. WILSON

Dr. Kenneth G. Wilson, formerly of Minneapolis, died at Laguna Beach, California, June 19, 1950, at the age of thirty-four.

Dr. Wilson was born in Minneapolis, August 27, 1915. He attended Washburn High School in Minneapolis and received the degree of B.S. from the University of Minnesota in 1938 and an M.D. in 1940. After interning at St. Luke's Hospital in San Francisco, he took postgraduate work at the Mayo Foundation specializing in aeronautical medicine.

During World War II, he was a flight surgeon at General Motors bomber plant, Cleveland, and at Consolidated Vultee Corporation, San Diego, California. He was a member of Psi Upsilon and Nu Sigma Nu fraternities.

Dr. Wilson is survived by his parents, Mr. and Mrs. Alfred E. Wilson of Minneapolis, a brother, John R., of San Francisco and a sister, Mrs. Cora J. Compton, of Minneapolis.

My duty (men have duty; and, if I would be a man,
Then I must bow to duty) is to do the best I can,
In ev'ry way, and ev'ry day, till I grow big enough
To realize the best of men are diamonds in the rough.
Time has a way of telling man its truths before he dies;
He profits most who serves the best. My job—there it
lies.

—Larry Flint

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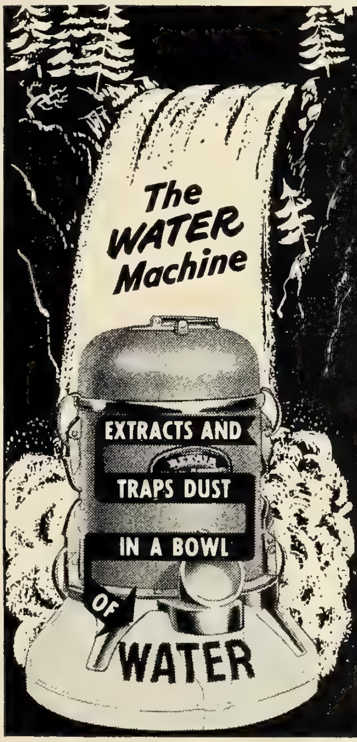

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Of General Interest

The annual Leo G. Rigler lecture in radiology will be given at the University of Minnesota on November 2 by **Dr. Knut Lindblom** of the Karolinska Institute in Stockholm, Sweden. Dr. Lindblom will speak on "Backache" at 8:15 p.m. in the ampitheater of the University Medical Sciences Building. The lecture will be given in connection with a course in neuroradiology held October 30 through November 3 at the University Center for Continuation Study.

* * *

Dr. L. E. Steiner, Albert Lea, was elected secretary of the Freeborn County Medical Society at the June 1 meeting of the organization. He succeeds Dr. E. S. Palmerton, who is taking a residency at the University Hospitals.

* * *

Dr. William S. Chalgren opened an office in Mankato on July 1 for the practice of neurology and psychiatry. A graduate of the University of Minnesota Medical School in 1943, Dr. Chalgren served his internship and a residency in neuropsychiatry at the University Hospitals. After a period of service in the Army, he returned to the University department of neuropsychiatry, and in 1949 he received a Ph.D. degree in neurology and was certified by the American Board of Psychiatry and Neurology. Formerly an assistant professor of neuropsychiatry at the University, he is now on the staff as a clinical assistant professor. He is also consultant in neurology at the St. Cloud Veterans Hospital and consultant in neuropsychiatry at the Nicollet Clinic, Minneapolis.

* * *

Dr. and Mrs. John Briggs, Saint Paul, left on August 21 to attend the International Congress of Cardiology, scheduled to open in Paris September 3. Dr. Briggs will address the International Congress of Chest Physicians at the Foralani Institute in Rome on September 20.

* * *

Dr. Burton C. Ostling began the practice of medicine in Kerkhoven on August 1. A graduate of the University of Michigan, Dr. Ostling has practiced for a year at Hastings.

* * *

Announcement of the appointment of **Dr. Robert B. May** as clinical director and assistant superintendent of the Fergus Falls State Hospital was made during the middle of July. At the time of the appointment Dr. May was serving in a similar capacity at the Willmar State Hospital.

Dr. May's previous experience includes work at the Hastings State Hospital in Nebraska and at the Greystone Park Hospital in Trenton, N. J. He has also been clinical director in one of the Maryland state hospitals and superintendent of the Eastern Shore State Hospital in Maryland.

* * *

After almost a year without the services of a local physician, Wanamingo acquired a resident physician late in July when **Dr. J. T. Boswell** opened offices there for the practice of medicine. A native of Oklahoma, Dr. Boswell served his internship at the U. S. Naval Hospital at Great Lakes, Illinois.

* * *

Dr. Paul Wendt, formerly of Sauk Rapids, became associated with the Johnson Clinic in Thief River Falls early in July. A graduate of the University of Minnesota Medical School, Dr. Wendt recently completed his internship at the Milwaukee County Hospital, Wisconsin.

* * *

Dr. Virgil J. P. Lundquist has opened offices at 829 Medical Arts Building, Minneapolis. He was recently affiliated with the University Hospitals and the Minneapolis Veterans Hospital.

* * *

Dr. J. A. Malerich and **Dr. William T. Miller** have moved into new offices at 914 South Robert Street, West Saint Paul.

* * *

Dr. C. L. Roholt left Waverly on July 21 to take a postgraduate course in general surgery in Chicago.

* * *

It was announced on July 20 that **Dr. Francis J. Braceland,** Rochester, had been appointed chairman of the governor's advisory council on mental health. Dr. Braceland, chief of the psychiatric section of the Mayo Clinic, succeeds Dr. Alexander G. Dumas, Minneapolis, who resigned as chairman because of ill health. Dr. Dumas retains a seat on the council, however.

Dr. Braceland has been a member of the council since 1947. In 1949 he was named co-consultant to the Division of Public Institutions in the development of Minnesota's mental health program. He has been head of the section on psychiatry and the department of neurology and psychiatry at the Mayo Clinic since April, 1947.

* * *

Dr. F. C. Dolder was presented with a lifetime membership in the Eyota Businessmen's Association at a meeting of the group in Eyota on July 13. Dr. Dolder was honored for his enthusiasm and activity in the association's projects during the past years.

* * *

Dr. David R. Philip has become associated in practice with Dr. L. H. Hoyer in the Windom Clinic. Dr. Philip has had postgraduate training in obstetrics and pediatrics. He is a former resident of Mankato.

* * *

It was announced on July 14 that **Dr. and Mrs. Louis H. Stahn** had returned from Spokane, Washington, and that Dr. Stahn planned to open an office for the practice of medicine in Minneapolis.

* * *

Two new physicians have joined the staff of the Itasca Clinic. They are **Dr. Larry E. Karges,** lo-

(Continued on Page 946)

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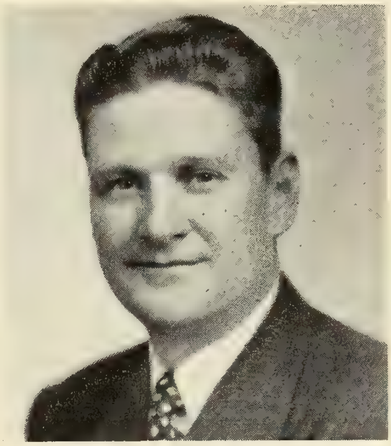

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(Continued from Page 944)

cated at Grand Rapids, and **Dr. Roy R. Juntunen,** who is with the clinic at Nashwauk. Both are graduates of the University of Minnesota Medical School. Dr. Karges interned at Ancker Hospital, Saint Paul, and Dr. Juntunen served his internship at St. Mary's Hospital, Duluth.

* * *

Dr. O. L. McHaffie, Duluth, has been named St. Louis County Medical Society representative to the Duluth Rehabilitation Center board of directors.

* * *

Dr. F. Donald Bucher opened offices for the practice of medicine in Starbuck on July 24. A graduate of the University of Nebraska, he served his internship at St. Joseph Hospital, Sioux City, Iowa. He has spent two years in service with the Navy.

* * *

Dr. W. W. Will, Bertha, is one of several physicians to be heard on a special radio broadcast this fall sponsored by the University of Minnesota as part of its centennial celebration. On the broadcast, which has been tape-recorded, Dr. Will is interviewed as he describes his experiences as a "country doctor." He is also heard in a typical office interview with a person imitating a patient. The title of the broadcast is "Minnesota Mid-Century," and the interviews with physicians are part of the medicine and health portion of the program.

* * *

Dr. Anthony L. Ourada, who recently completed a residency in surgery at Swedish Hospital, Minneapolis, began medical practice in Waseca on July 17. A graduate of the University of Minnesota Medical School in 1946, Dr. Ourada served his internship at St. Elizabeth's Hospital in Youngstown, Ohio. He then spent sixteen months in the Army in Germany.

* * *

Dr. A. M. Ridgway, Annandale, said to be the oldest practicing physician in Minnesota, observed his sixtieth year of practice on July 15.

* * *

Dr. Lewis Thomas, former professor of pediatrics and medicine at Tulane University, has been appointed to the American Legion memorial research professorship in rheumatic fever and heart disease at the University of Minnesota Medical School. The professorship was established through funds provided by the Minnesota American Legion and its auxiliary. Dr. Thomas, a graduate of Harvard University in 1937, will study causes and treatment of rheumatic fever and heart disease and will direct special research teams.

* * *

Dr. and Mrs. R. V. Williams left Rushford on July 25 for a trip to Norway. They planned to spend two months visiting various points in Norway before returning to Rushford.

* * *

Two physicians specializing in the practice of internal medicine opened a new medical office in Mankato on July 27. **Dr. Robert H. Conley** and **Dr. Benjamin R. Guers,** who had been in Mankato since June, announced that their new offices had been completely remodeled and equipped.

Both physicians are graduates of the University of Minnesota Medical School and both recently completed three years of postgraduate work at the University Hospitals and Minneapolis Veterans Hospital. Dr. Conley served his internship at Rochester General Hospital, Rochester, New York, and then spent three years in the Navy. Dr. Guers interned at Ancker Hospital, Saint Paul, and served in the Army for three years.

* * *

Dr. Bernard S. Nauth opened offices for the practice of medicine in Bemidji on July 31. A graduate of the University of Minnesota Medical School in 1941, Dr. Nauth served in the Army for two and one-half years. He spent the past five years as a general practitioner in the Winona Clinic.

* * *

Dr. John R. Zell, a native of Mankato, has accepted an appointment for a three-year residency in neuropsychiatry at the United States Veterans Hospital at Coatsville, Pennsylvania. Dr. Zell recently completed his internship at the U. S. Naval Hospital in Philadelphia.

* * *

Dr. Arthur H. Borgerson, Long Praire, has been invited to speak at a meeting of the American Association of Blood Banks in Chicago October 12 through 14. He has been asked to describe the methods used in establishing a blood bank in Long Prarie, which was the first community in Minnesota, outside of the metropolitan centers, to set up such a blood bank system.

* * *

On July 24 the residents of Northome could again obtain the services of a local physician after being without them for almost two years. On that day **Dr. Gordon Franklin** opened offices for the practice of medicine in Northome.

A native of Vernon Center, Dr. Franklin is a graduate of the College of Medical Evangelists. He interned at the Glendale Sanatorium and Hospital in Los Angeles and took additional training at St. Luke's Hospital, Saint Paul.

During the past two years Dr. Roger MacDonald of Littlefork served the Northome community two days each week.

* * *

Dr. Yngve Hakanson, after a year and one-half of study in cell research and biochemistry at the Karolinska Institute in Stockholm, Sweden, joined the department of obstetrics and gynecology at the University of Minnesota on August 1.

* * *

Dr. B. O. Mork, formerly of Worthington, has been appointed medical director of one of the Los Angeles eight public health districts. He will combine his new activities with his work on the faculty of the University of California at Los Angeles.

* * *

Mrs. Horace Newhart, wife of the late Dr. Newhart, died in Minneapolis on August 14. Long active in

(Continued on Page 948)

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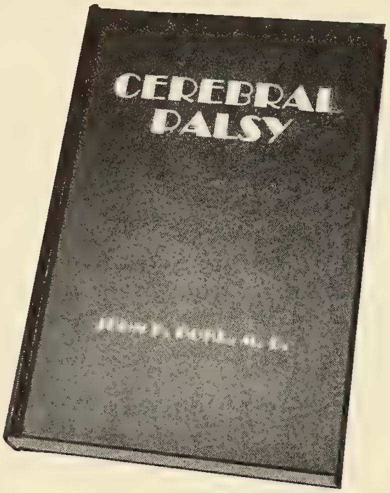

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Dr. John F. Pohl is a Diplomate of the American Board of Orthopedic Surgery and is orthopedic surgeon at the Michael Dowling School for Crippled Children. He is also the author of "The Kenny Concept of Infantile Paralysis and Its Treatment," thousands of copies of which have been sold throughout the world.

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(Continued from Page 946)

church and women's groups, she was also president of the Minneapolis Society for the Hard of Hearing. She had been a director of Northwestern Hospital, Minneapolis, for more than forty years.

* * *

On August 7 the Rochester city council approved a health department resolution hiring **Dr. George Williams,** Saint Paul, as psychiatrist with the department's counseling clinic. Dr. Williams, affiliated at present with the University of Minnesota, will replace Dr. Robert Fawcett as the clinic psychiatrist on January 1.

* * *

Dr. Wallace R. Anderson joined the staff of the Austin Clinic on August 1. A graduate of the University of Minnesota Medical School, he interned at Minneapolis General Hospital, following which he took two years of postgraduate training in pediatrics. His practice at Austin will be limited to this specialty.

* * *

Dr. and Mrs. Rudolph B. Skogerboe and family returned home to Karlstad on July 25 from a three-week vacation, two weeks of which were spent in New York and one at Lake Andrusia.

* * *

Dr. Nelson J. Bradley has been appointed superintendent of the Willmar State Hospital, succeeding Dr. Stanley B. Lindley, who had resigned to join the staff of the Veterans Administration Hospital in Knoxville, Iowa. At the time of his appointment, Dr. Bradley was acting superintendent of the Hastings State Hospital, a position he had held since the former superintendent, Dr. Ralph Rossen, was appointed state mental health commissioner last January.

A graduate of the University of Alberta, Dr. Bradley has taken postgraduate work at the University of Minnesota. He joined the Hastings State Hospital staff in 1948.

* * *

Dr. Alphonse Cyr, Barnesville, was appointed Clay County health officer at a commissioner's meeting in Moorhead early in July. Dr. Cyr replaces Dr. Olga H. Johnson, Moorhead, who resigned from the office.

* * *

Dr. Cherry B. Cedarleaf has become associated in practice with Dr. L. H. Rutledge and Dr. C. W. Moberg in Detroit Lakes. A graduate of the University of Minnesota Medical School, Dr. Cedarleaf interned at the Waterbury Hospital, Waterbury, Connecticut, and then spent two years in resident graduate work at Northwestern Hospital, Minneapolis.

* * *

Dr. George W. Heine became associated in practice with Dr. G. M. A. Fortier at the Little Falls Clinic on August 1. A graduate of the University of Minnesota Medical School in 1948, Dr. Heine interned at St. Luke's Hospital, Duluth, and then spent one year at the Oakland Naval Hospital.

* * *

Dr. and Mrs. Edmund Miller and their son, Robert, returned home to Anoka in July from a trip to the West Coast. While in California, Dr. Miller presented a paper on the care of tuberculosis patients in institutions at a meeting of the American College of Chest Physicians in San Francisco on June 25.

* * *

Dr. L. E. Gallett, formerly of Pulaski, Wisconsin, has opened offices for the general practice of medicine at 2131 West Old Shakopee Road, Bloomington (Minneapolis). A graduate of the University of Wisconsin Medical School, Dr. Gallett practiced at Pulaski for eight years. He recently completed a year of postgraduate study in allergy at the Cook County Graduate School of Medicine.

* * *

Three Rochester physicians will present papers at the eighty-fifth annual session of the Michigan State Medical Society in Detroit September 20 through 22. Dr. Louis A. Brunsting will speak on "The Present Status of the Syphilis Problem." Dr. John R. McDonald will discuss "The Clinical Importance of Early Cancer," and Dr. James T. Priestley's subject will be "Surgical Lesions of the Stomach."

* * *

Dr. David Hoehn and his wife, **Dr. Bernice Andrews,** have replaced Dr. E. J. Schmitz in Holdingford. Dr. Schmitz gave up his practice to become a fellow in surgery at the University of Washington at Seattle. Graduates of the University of California in 1937, Dr. Hoehn and Dr. Andrews have practiced for nine years in the interior of Alaska, for two years in Tennessee, and for one year in North Dakota.

* * *

Goodhue acquired a new physician early in July when **Dr. James W. Halvorson** opened offices there for the practice of medicine. A graduate of the University of Minnesota Medical School in 1948, Dr. Halvorson served his internship at St. Mary's Hospital in Winona. He then spent one year at the U. S. Naval Hospital at Great Lakes, Illinois.

* * *

Dr. Hendrik De Kruif, formerly of Minneapolis, has moved to Fergus Falls and has become associated with the Fergus Falls Clinic.

* * *

Dr. Marshall J. Melius, formerly of Saint Paul, joined the Henry Clinic in Milaca on August 7. A graduate of the University of Minnesota Medical School, Dr. Melius served his internship at the Milwaukee County Hospital, Wisconsin. He recently completed some postgraduate training at St. Joseph's Hospital, Saint Paul.

* * *

The first meeting of the **Minnesota Clinic Managers** was held at the Androy Hotel in Hibbing on July 28 and 29. The organization consists of the managers of medical clinics in the state.

* * *

Dr. F. R. Ritzinger has become associated in practice with the Rose and Doman Clinic in Lakefield. A graduate of the University of Illinois Medical School, Dr. Ritzinger served his internship at Ancker Hospital, Saint Paul. He has completed a one-year surgical residency at Miller Hospital, Saint Paul.

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It was announced late in July that **Dr. John Reitmann** had left his position at the Hastings State Hospital to become supervisor and chief medical officer at the Sandstone State Hospital.

* * *

Dr. Anthony C. Gholz, a former resident of Worthington, has announced the opening of offices in association with Dr. William D. Cleland, Jr., in Port Huron, Michigan. Dr. Gholz is limiting his practice to pediatrics.

A graduate of the University of Minnesota Medical School, Dr. Gholz recently completed a residency at the Children's Hospital, Detroit, Michigan.

* * *

The Clarkfield Clinic announced late in July that **Dr. Curtis M. Johnson**, of Jackson, would join its staff about September 1.

The National Committee for a Free Europe, Inc., is an organization of public-spirited American citizens who operate Radio Free Europe as an independent counterpart of the government-operated Voice of America. Unhampered by government control, Radio Free Europe broadcasts anti-Communist programs from a short-wave transmitter beamed from western Germany to behind the Iron Curtain. The freedom station carries the voices and messages of exiled leaders back to the satellite countries from which they escaped.

The National Committee for a Free Europe is sponsoring a Crusade for Freedom, to be undertaken this fall to enroll Americans on Freedom Scrolls, which will be permanently enshrined in the base of a ten-ton Freedom Bell to be hung in Berlin next October.

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Surgery of Colon & Rectum, One Week, starting September 11, October 9.
Esophageal Surgery, One Week, starting October 16.
Breast & Thyroid Surgery, One Week, starting October 2.
Thoracic Surgery, One Week, starting October 9.
Gallbladder Surgery, Ten Hours, starting October 23.
Fractures & Traumatic Surgery, Two Weeks, starting October 9.
Basic Principles in General Surgery, Two Weeks, starting September 11.
GYNECOLOGY—Intensive Course, Two Weeks, starting September 25, October 23.
Vaginal Approach to Pelvic Surgery, One Week, starting September 8, November 6.
OBSTETRICS—Intensive Course, Two Weeks, starting September 11, November 6.
MEDICINE—Intensive General Course, Two Weeks, starting October 2.
Gastro-enterology, Two Weeks, starting October 16.
Gastroscopy, Two Weeks, starting September 11, October 23.
Electrocardiography & Heart Disease, Four Weeks, starting October 2.
DERMATOLOGY—Formal Course, Two Weeks, starting October 16. Informal Clinical Course every two weeks.
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The Mesaba Clinic staff was increased in July with the addition of **Dr. Wesley Tomhave,** who had just completed his internship at Minneapolis General Hospital. A graduate of the University of Minnesota in 1942, Dr. Tomhave served in the Navy for two and one-half years before returning to Minnesota to study medicine. He received his bachelor of medicine degree from the University Medical School in 1949.

* * *

Dr. Hans Johnson was re-elected president of the Kerkhoven school board at the annual reorganization meeting on July 5. Dr. Johnson has held the office for many years.

* * *

Physicians from five states announced on August 5 plans for a "mutual assistance disaster program" for exchange of **whole blood and plasma** in case of an atomic bombing. Meeting in Minneapolis, physicians from Minnesota, North and South Dakota, Iowa and Wisconsin emphasized the need for decentralization of blood collection so that if one center were destroyed by bombs supplies would be available elsewhere. A blood procurement and planning committee was organized to work on the problem.

* * *

In Mankato, **Dr. Roger G. Hassett** has been occupying temporary quarters while work is progressing on his new medical center building. The project involves remodeling the present structure and constructing an 87-foot two-story addition. When completed, the center will contain offices for physicians, dentists and attorneys, as well as space for a commercial firm.

* * *

It was announced on August 3 that two new physicians were moving to Pelican Rapids. **Dr. Lawrence Pearson** planned to arrive on September 1 to be associated in practice with Dr. H. A. Korda in the Pelican Valley Clinic. Dr. Pearson, who was graduated from the University of Minnesota Medical School and interned at Miller Hospital, Saint Paul, has practiced medicine at Warroad for the past nine years.

Dr. H. K. Helseth, of Mott, North Dakota, and formerly of Fergus Falls, was also planning to move to Pelican Rapids as soon as suitable office space could be found.

* * *

At a meeting of the Exchange Club in Winona on July 18, **Dr. R. H. Wilson** discussed the operational problems of the Winona General Hospital. He stated that hospital rates in Winona were high, not because of inefficient management or because somebody was trying to make a lot of money, but because of poor local patronage, inefficiency of the present physical plant, and lack of subsidization of any type. He suggested, as a solution, acquainting the public with the facts, constructing a new hospital, and converting the present structure to a convalescent and chronic disease home.

* * *

Dr. Edwin J. Simons, prominent practitioner in Swanville for more than twenty-five years, has sold his practice to Dr. Edwin G. Knight, his associate for the past eight years, and has moved to Edina (Minneapolis).

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1. *Withering, W.:* An account of the Foxglove, London, 1785.
2. *Rimmerman, A. B.:* Digilanid and the Therapy of Congestive Heart Disease, Am. J. M. Sc. *209:* 33-41 (Jan.) 1945.

Literature giving further details about Digilanid and Physician's Trial Supply are available on request.

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The transfer of practice became effective September 1.

During his years at Swanville Dr. Simons compiled an outstanding record of service to the public and to the medical profession. He has served as president of the Minnesota State Medical Association and the Upper Mississippi Medical Society. He was senior physician at the state tuberculosis sanatorium at Walker and served as chief of the medical services unit of the Minnesota Division of Social Welfare. He was one of the twenty-one state physicians who organized the Blue Shield medical insurance plan, and is still one of its directors. He is at present a trustee of the Minnesota Medical Foundation at the University of Minnesota. In addition to these duties he conducted his private practice at Swanville for over twenty-five years and even found time to serve as mayor for several years.

* * *

Dr. E. M. James, who has opened a medical laboratory at 657 Lowry Medical Arts Building, Saint Paul, is also continuing his work as pathologist for St. Joseph's Hospital, Saint Paul.

* * *

Dr. Justin C. Lannin, Mabel, was honored for his thirty-nine years of service at ceremonies held in Mabel on July 16 and attended by more than 1,000 persons. Dr. Lannin was presented with a scroll commemorating the occasion and was given luggage and a wrist watch by Mabel businessmen and other friends. Present during the ceremonies were Dr. Lannin's wife and his two sons, both physicians, Dr. Bernard G. Lannin and Dr. Donald R. Lannin, of Saint Paul.

A graduate of McGill University in Montreal, Canada, Dr. J. C. Lannin came to the United States in 1910 and located at Caledonia. After a year there, he moved to Mabel, where he has since practiced.

HOSPITAL NEWS

At the organizational meeting of the medical staff of the new **Zumbrota Community Hospital,** held in Zumbrota on June 29, Dr. M. G. Flom was elected chief-of-staff, and Dr. Oliver E. H. Larson, secretary.

* * *

First steps in the organization of a women's auxiliary unit for the new **Community Memorial Hospital** in Blue Earth were taken on July 21 when more than seventy-five women met at the hospital at the invitation of Mrs. Dora McKee, the superintendent. Following organization, the group planned to supply the various needs of the hospital. Its first project was to prepare new hospital linens. Future projects may include raising funds, providing volunteer workers, and canning food for hospital use.

* * *

The **Valleyview Hospital and Sanitarium** near Jordan was dedicated on July 16. A chronic-disease institution, the hospital was renovated and remodeled through the efforts of Dr. Joseph C. Michael of Minneapolis.

* * *

A meeting of men of the St. Wenceslaus parish in Jackson was held on July 23 to discuss the commuinty hospital situation and to find ways to assist the Sisters of Charity in the operation of the **Hal-**

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loran Hospital. A committee was formed to try to solve the problem of the lack of proper facilities due to the hospital's crowded condition.

* * *

Cornerstone-laying ceremonies for the new **St. Louis County Infirmary,** adjoining St. Luke's Hospital, Duluth, were held on July 18 by the Minnesota Grand Lodge of AF&AM. Among lodge officials taking part in the ceremonies was Dr. B. S. Adams, Hibbing, past grand master of the lodge.

* * *

The blessing and dedication ceremony of the site for the **St. John's Hospital,** to be built at Red Lake Falls, was held on July 9. Among physicians taking part in the ground-breaking ceremonies were Dr. L. N. Dale, Red Lake Falls, and Dr. C. G. Uhley and Dr. O. K. Behr, both of Crookston.

* * *

The dedication of the new **St. Michael's Hospital** in Sauk Centre was held on July 9. The size of the crowd attending the ceremonies, in spite of overcast skies, was estimated at from 3,000 to 5,000 persons. As principal speaker on the dedicatory program, Dr. Alfred W. Adson, Rochester, predicted that within five years the $700,000 institution would be doubled in size. "Someone was smart," he stated, "when they planned this institution to provide for fifty additional beds. With an area serving 18,000 people, in five years you're going to need them."

* * *

Three new operating rooms and one for application of casts have been constructed at **St. Mary's Hospital,** Rochester. The rooms include two for major and one for minor orthopedic surgery. Their construction is part of a $215,000 renovation plan for the fifth and sixth floors of the hospital's east surgical wing. The addition of the four rooms brings the total of operating rooms at the hospital to twenty.

BLUE SHIELD NEWS

During recent months members of the Blue Shield and Blue Cross staff have been invited to attend hospital staff meetings to discuss how the doctor can assist Blue Cross and Blue Shield. The purpose of such meetings has been to secure the full co-operation of staff physicians in correcting serious situations that have arisen regarding both non-profit plans. Due to the close affiliation of Blue Cross with Blue Shield, the physician's own plan of prepaid medical care, the problems which affect one plan will likewise affect the other. Blue Cross and Blue Shield cannot exist without the support and co-operation of the doctors and the hospitals. For the benefits of those who have not attended a hospital staff meeting where these problems have been discussed, briefly these are the problems.

Minnesota Blue Cross paid to hospitals for subscriber care approximately $400,000 more in 1949 than was anticipated. The final analysis shows that this increase of hospital utilization was caused by various items. Perhaps the largest single item that affected this increase was the fact that many patients were being hospitalized solely for services which appear to be in many instances purely health examinations. It is

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realized that some of these hospitalized cases are a result of undue pressure placed on the doctor by the patient who feels that he has a hospital contract that does provide for diagnostic work. It was not the original intent of Blue Cross to provide for services of this type which in most instances do not require an overnight stay in the hospital and Blue Cross does not provide benefits for outpatient care except for accidents and minor surgery including such service which cannot be provided in the doctor's office. A new Blue Cross contract has been approved and will supersede the one now in existence. This contract excludes benefits for diagnostic work; however, it will not replace the present contract until the expiration date of each contract. In the meantime, we can only request the doctors to advise their patients that diagnostic services which do not require an overnight stay in the hospital should be done in the doctor's office or paid for by the patient if outpatient care is necessary in the hospital.

The Blue Cross problem is mainly that diagnostic cases are kept in the hospital over night whereas formerly they were outpatient cases.

The hospital drug bills for 1949 increased over 1948 by $1.37 per case resulting in an over-all increase of $200,000 for the year. Laboratory work increased $1.47 per case or approximately $210,000 for the year.

It is not the intent of either Blue Cross or Blue Shield to advise the medical profession or the hospitals as to how they should practice medicine or operate the hospitals. It is merely the intent to point out some of the situations that have arisen and ask the co-operation of the medical profession in attempting to eliminate abuses so that the cost to Blue Cross can be reduced, and thereby keep the rates within the means of the low income groups of people. Many people have the erroneous impression that Blue Cross and Blue Shield lower the cost of medical care. They do not and cannot lower it one penny. They only spread it. Doctor Hawley, director of the American College of Surgeons, says: "The utilization rate of Blue Cross has been rising steadily for the past six or seven years. Also, during this same period, hospital charges have increased tremendously. So Blue Cross has been caught between the upper and nether millstones of spiraling costs and increasing utilization. We cannot keep this up forever. One of these days Blue Cross is going to be too expensive for poor people. When that day comes, we are going to have compulsory health insurance. Poor people can vote, you know, even if they cannot afford Blue Cross."

Both the Blue Cross and Blue Shield contracts specify that no allowance will be made for the treatment of any condition which was known by the subscriber or any of his family dependents to exist at the time the contract application is received in the Blue Cross, Blue Shield office until ten months after the contract has been in effect. It has been the policy of this office to consult the subscriber's physician regarding this informaiton; it is believed that the physician is in the position to furnish such information and also that he would assist in governing the control of this factor which is of vital importance to the success of the Plans.

In some instances it is becoming increasingly difficult to obtain specific information. Much of the information relative to foreknown conditions is inclined to be vague rather than specific enough to establish a date of knowledge of the condition. It is realized that in many instances it is difficult to make a definite statement concerning this matter; however, it is believed that the physician in obtaining a history is in a position to know whether that condition could or could not have been present for a specified length of time.

Information which is difficult to interpret could result in increased utilization. For example, if Blue Shield were to make allowances for ten cholecystectomies in the course of a month which rightfully should not be paid, utilization for that month would increase by $1,250. This may not appear to be very much in an over-all picture of approximately $200,000 allowed for a month; however, if this situation continues to increase it is easily possible to foresee an excessive increase in utilization. The same situation also applies to Blue Cross and it is reasonable to assume that if allowances were made on ten cholecystectomies the utilization would run from $1,500 to $2,000 per month. The co-operation of the medical profession in furnishing correct and specific information on this question is requested for it is assumed that the medical profession does not wish to place unnecessary burdens on these two non-profit plans.

Blue Shield payments for June totaled $184,427.37 bringing the total for the first six months to $954,685.20. Enrollment of new Blue Shield subscribers shows an increase for this year of 99,528, enrollment as of June 30, 1950 is 360,029. Blue Cross enrollment as of the same date totaled 1,033,139 participant subscribers. The average fee per Blue Shield claim for the first six months of 1950 is $40.05 as compared with $38.92 for 1949. June payments covered 4,788 Blue Shield claims; 23,385 claims were paid for the six month's period.

October will mark the opening of the second Blue Cross-Blue Shield non-group enrollment campaign which will run from October 1 through October 22, 1950. A total of 495 advertisements in twenty-six non-metropolitan (out-state) dailies, eighty-five county weeklies, the *Minneapolis Sunday Tribune* and the *St. Paul Sunday Pioneer Press* will tell the people of Minnesota why and how they should enroll in Blue Shield and Blue Cross. To create interest in the campaign and to help people in each area get information quickly since there is a definite time limit on the campaign, the doctors are being requested to display non-group literature and a poster in their waiting rooms.

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

THE ESOPHAGUS AND PHARYNX IN ACTION. William Lerche, M.D. Fellow American College of Surgeons; Founder Member and Honorary Member of the American Association for Thoracic Surgery; formerly Associate Professor of Surgery, University of Minnesota, Minneapolis. 222 pages. Illus. Price $5.50, cloth. Springfield, Illinois: Charles C Thomas, 1950.

THE ANTIHISTAMINES—THEIR CLINICAL APPLICATION. Samuel M. Feinberg, M.D., Associate Professor of Medicine, Chief of Division of Allergy and Director of Allergy Research Laboratory; Saul Malkiel, Ph. D., M.D., Assistant Professor of Medicine Director of Research, Allergy Research Laboratory; Alan R. Feinberg, M.D., Clinical Assistant in Medicine, Attending Physician in Allergy Clinic. 291 pages. Illus. Price, $4.00, cloth. Chicago: Year Book Publishers, 1950.

PHYSICIAN'S HANDBOOK. Sixth Edition. Marcus A. Krupp, M.D., Assistant Clinical Professor of Medicine, Stanford University School of Medicine, Director Clinical Pathology, Veterans Administration Hospital, San Francisco; Norman J. Sweet, M.D., Assistant Professor of Medicine, University of California School of Medicine, San Francisco; Ernest Jawetz, Ph.D., M.D., Associate Professor of Bacteriology and Lecturer in Medicine and Pediatrics, University of California School of Medicine, San Francisco; and Charles D. Armstrong, M.D., Clinical Instructor in Medicine, Stanford University School of Medicine. 380 pages. Illus. Price $2.50, paper cover. Palo Alto, California: University Medical Publishers, 1950.

SAINTS, SINNERS AND PSYCHIATRY. Camilla M. Anderson, M.D., Assistant Clinical Professor of Psychiatry, University of Utah. 206 pages, including index. Price $2.95. Philadelphia: J. B. Lippincott Company, 1950.

This is a well-written book in about the simplest and most understandable language possible, and can be highly recommended to general practitioners and to intelligent laymen.

It clearly describes the dynamics of behavior by showing how everyone has his individual self-image, both physical and psychological. This self-image is composed of many parts, and each part is conceived of as having both structure and function, that is, anatomy and physiology. Each organ does a specific job. Every character trait carries with it the expectation of a result to be obtained through the use of it.

The psychological self-image is formed early in life as a result of the child's experiences with the significant people in his environment. Once a character trait has been formed, that is, becomes structuralized, it becomes compulsive, and its functional results are taken for granted.

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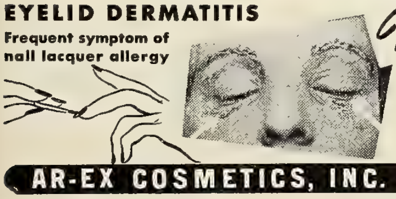

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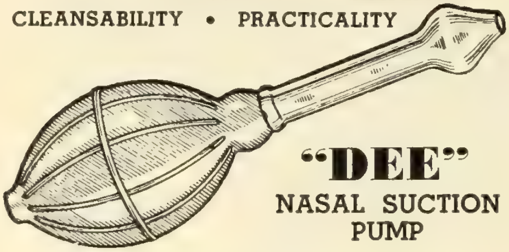

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Psychotherapy involves two processes. One, the clarification of the individual's assumptions; the other, establishment of new assumptions more realistically oriented. Mental health becomes a fact as habitual defense mechanisms are discarded and one can accept himself as he is *(psychiatry)*.

Herbert Busher, M.D.

HANDBOOK OF OBSTETRICAL AND DIAGNOSTIC GYNECOLOGY. Leo Doyle, M.S., M.D. 240 pages. Illus Price $2.00. Palo Alto, California: University Medical Publishers, 1950.

Dr. Doyle has organized a vast amount of obstetrical

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and gynecological information in his handbook which can be used to refresh one's memory on a specific problem utilizing a minimum of time.

The book contains charts for normal hematological values, normal blood chemistry values, normal renal function and urine values, hematological changes during pregnancy, blood chemistry values during pregnancy, miscellaneous laboratory values, cardio-vascular changes during pregnancy, tables of approximate equivalents and an obstetrical calender. The above information is on the inner side of the front and back covers.

There are two sections to the handbook. Section I has twenty-nine chapters; each chapter is in outline form, plus charts, pictures and diagrams regarding the specific problem of obstetrics under discussion. Section II contains ten short chapters on Diagnostic Gynecology. Space does not permit a detailed analysis of each chapter; however, the chapter regarding Emotional Aspects of Pregnancy is one which merits special citation. This phase of obstetrics is one which is often neglected in medical texts and not too seriously considered by busy practitioners.

The author has included standard obstetrical information and procedures in the text. He also describes some of his personal techniques and "tricks of trade."

The book is pocket size and could be used as a handy reference for emergency information, for hospital work, at home deliveries and at the office.

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FOR SALE—$15,000 cash practice in county seat of 14,000, with two hospitals, for price of office equipment, which is complete and in perfect condition. Forced to retire on account of health. Address E-200, care MINNESOTA MEDICINE.

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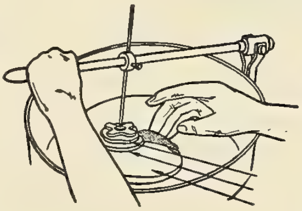

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Entered at the Post Office in Saint Paul as second class mail matter. Accepted for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized July 13, 1918.

MINNESOTA MEDICINE

Official Journal of the Minnesota State Medical Association

Published by the Association under the direction of its Editing and Publishing Committee

Office of Minnesota State Medical Association,
493 Lowry Medical Arts Bldg., Saint Paul 2, Minnesota.

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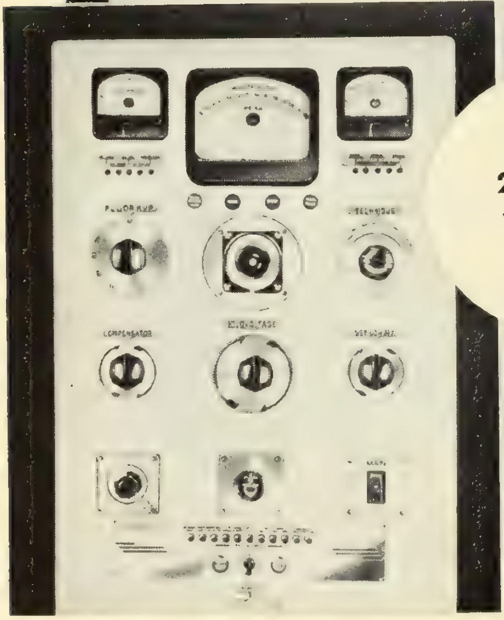

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Harding, F. E.: West. J. Surg. Obst. & Gynec. 52:31 (Jan.) 1944

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Neustaedter, T.: Am. J. Obst. & Gynec. 46:530 (Oct.) 1943.

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Glass, S. J., and Rosenblum, G.: J. Clin. Endocrinol. 3:95 (Feb.) 1943

"General tonic effects were noteworthy and the greatest percentage of patients who expressed clear-cut preferences for any drug designated 'Premarin.'"

Perloff, W. H.: Am. J. Obst. & Gynec. 58:684 (Oct.) 1949.

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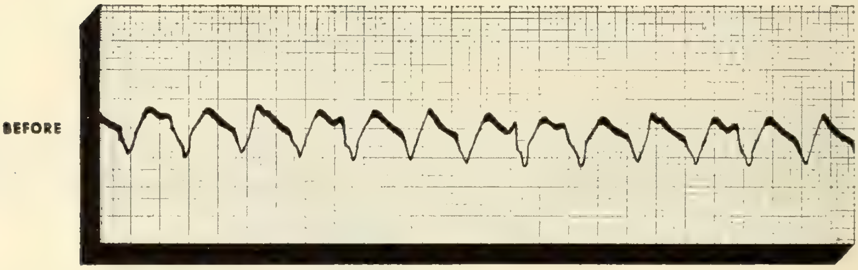
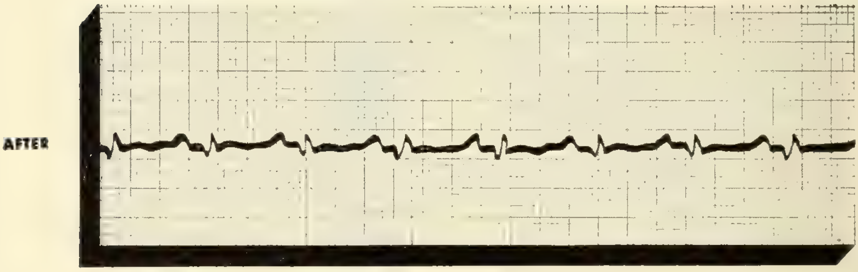
A New Drug..for the treatment of ventricular arrhythmias



Lead II. Ventricular tachycardia persisting after six days of oral quinidine therapy (8 Gm. per day).



Lead II. Normal sinus rhythm after oral Pronestyl therapy.

Effective in some patients with ventricular tachycardia who failed to respond to quinidine

PRONESTYL *Hydrochloride*

Squibb Procaine Amide Hydrochloride

SQUIBB

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new product brief

PRONESTYL *Hydrochloride*

Squibb Procaine Amide Hydrochloride

for the treatment of ventricular arrhythmias

What is it?

Pronestyl Hydrochloride is Squibb procaine amide hydrochloride. Structurally, Pronestyl differs from procaine only by the presence of the amide grouping (.CO.NH.) in Pronestyl where procaine has the ester grouping (.CO.O.)

How does it act?

The action of Pronestyl is probably due to a direct depressant action on the ventricular muscle. In auricular arrhythmias, preliminary observations indicate that Pronestyl slows auricular rate but usually does not re-establish normal sinus rhythm. At present, Pronestyl is not recommended in the treatment of auricular arrhythmias.

When is it indicated?

In conscious patients, for the treatment of ventricular arrhythmias.

During anesthesia, to correct cardiac arrhythmias.

What are its advantages in ventricular arrhythmias?

As compared with quinidine: Unlike quinidine, no important toxic symptoms have been reported following the use of Pronestyl orally. In therapeutic dosage, Pronestyl orally does not produce the nausea, vomiting, and diarrhea often caused by quinidine. At high oral dosage, these symptoms may appear.

Whereas intravenous administration of quinidine is hazardous and unpredictable, Pronestyl may be given intravenously with relative safety.

Pronestyl has been found effective in some patients who failed to respond to quinidine.

As compared with procaine: For arrhythmias, procaine is used only in anesthetized patients because its dose in unanesthetized patients is too toxic for clinical use. Pronestyl can be used in conscious and anesthetized patients.

Intravenously, Pronestyl is much less toxic than procaine. In the recommended intravenous dosage, Pronestyl does not cause the central nervous system stimulation typical of procaine in conscious patients.

Procaine is unstable, being rapidly hydrolyzed in the plasma to para-aminobenzoic acid and diethylaminoethanol. Pronestyl is not affected by the plasma procaine esterase, consequently it is much longer acting than procaine.

Procaine is not used orally because of its instability in the organism; Pronestyl can be used orally and intravenously.

What are its side effects?

Oral administration of Pronestyl in doses of 3-6 grams per day, for periods of time varying from 2 days to 3 months, produced no toxic effects as evidenced by studies of the blood count, urine, liver function, blood pressure, and electrocardiogram. Intravenous administration to patients without ventricular tachycardia produced only a moderate and transient hypotensive effect in about one-third of the subjects. However, during intravenous administration to patients with ventricular tachycardia, a striking hypotensive effect was almost invariably present. This disappeared concurrently with the establishment of a normal rhythm. Further studies are in progress to see whether the drug may be given intravenously over a period of time longer than five minutes so as to revert the ventricular tachycardia without causing hypotension. That this may be possible is indicated by the fact that some episodes of ventricular tachycardia have been successfully treated by oral administration without significant change in blood pressure. Electrocardiographic changes: prolongation of QRS and QT intervals and occasional diminution in voltage of QRS and T waves have occurred.

What is the dosage?

IN CONSCIOUS PATIENTS

For the treatment of ventricular tachycardia:

ORALLY: 1 Gm. followed by 0.5-1.0 Gm. every four to six hours as indicated.

INTRAVENOUSLY: 200-1000 mg. (2 to 10 cc. Pronestyl Hydrochloride Solution). *Caution—administer no more than 200 mg. (2 cc.) per minute.*

Hypotension may occur during intravenous use in conscious patients. As a precautionary measure, administer at a rate no greater than 200 mg. (2 cc.) per minute to a total of no more than 1 Gm. Electrocardiographic tracings should be made during injection so that injection may be discontinued when tachycardia is interrupted. Blood pressure recordings should be made frequently during injection. If marked hypotension occurs, rate of injection should be slowed or stopped.

For the treatment of runs of ventricular extrasystoles:

ORALLY: 0.5 Gm. (2 capsules) every four to six hours as indicated.

IN ANESTHESIA

During anesthesia, to correct ventricular arrhythmias:

INTRAVENOUSLY: 100-500 mg. (1 to 5 cc. Pronestyl Hydrochloride Solution). *Caution – administer no more than 200 mg. (2 cc.) per minute.*

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Pronestyl Hydrochloride Solution, 100 mg. per cc., in 10 cc. vials.

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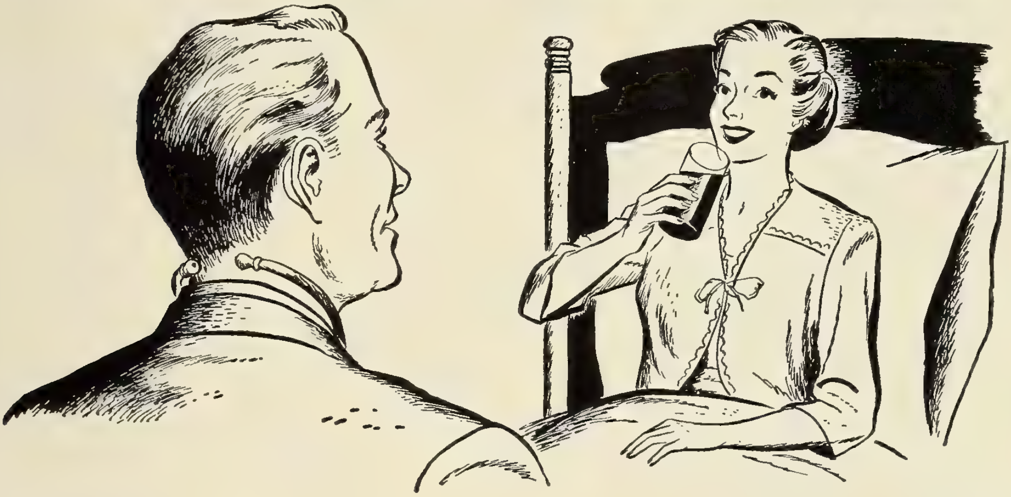
REGARDLESS OF INDICATED THERAPY

Nutrition is a Primary Factor



Whether the condition under treatment is an acute infection, a bowel upset, an injury or a metabolic derangement, nutrition is always a primary factor in therapy. Regardless of other indicated measures, nutritional adequacy is essential for prompt recovery.

When dietary supplementation is the indicated means of increasing the nutrient intake, the food drink, Ovaltine in milk, can prove highly beneficial. Providing significant amounts of all nutrients considered essential, it virtually assures dietary adequacy when the recommended three glassfuls daily are taken in conjunction with even a fair diet.

Temptingly delicious and readily digested, this dietary supplement fits well into the framework of most indicated diets, and finds ready patient acceptance. Its generous nutrient content is detailed in the table below.

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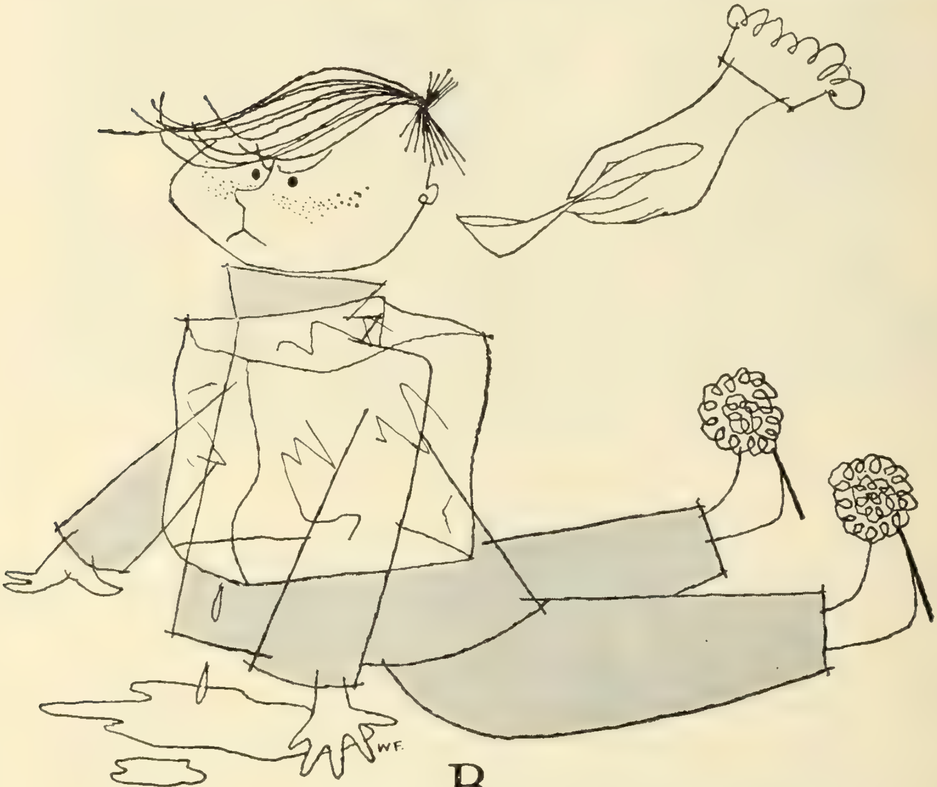
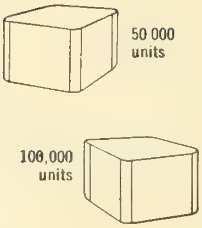
CARBOHYDRATE	65 Gm.	RIBOFLAVIN	2.0 mg.
CALCIUM	1.12 Gm.	NIACIN	6.8 mg.
PHOSPHORUS	0.94 Gm	VITAMIN C	30.0 mg.
IRON	12 mg.	VITAMIN D	417 I.U.
COPPER	0.5 mg.	CALORIES	676

*Based on average reported values for milk.

Two kinds, Plain and Chocolate Flavored. Serving for serving, they are virtually identical in nutritional content.

When little patients
turn a cold shoulder





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Potassium Tablets (Buffered)

*MEDICATED SUGAR TABLETS, ABBOTT

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A urinary tract infection

Resistant to "... all available antibiotics and chemotherapeutic agents."[1]

TREATED WITH TERRAMYCIN

M.F., male, age 48

History: Pyelonephritis, 1½ years' duration following ureterocutaneous implants (mixed infection: P. vulgaris, E. coli, Staph. albus, enterococci); previous therapy with all available antibiotics and chemotherapeutic agents without response.

Therapy: Terramycin, 2 Gm. daily for 5 days; orally in divided doses q. 6 h.

Result: Urine culture negative except for P. vulgaris by 2nd day of treatment. Response described as "good".

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Terramycin

HYDROCHLORIDE

New Council-accepted broad-spectrum antibiotic orally effective — well tolerated

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1. Terramycin may be highly effective even when other antibiotics fail.[1]
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suggested for: *acute pneumococcal infections, including lobar pneumonia, bacteremia; acute streptococcal infections, including erysipelas, septic sore throat, tonsillitis; acute staphylococcal infections; bacillary infections, including anthrax; urinary tract infections due to E. coli, A. aerogenes, Staphylococcus albus or aureus, and other Terramycin-sensitive organisms; acute brucellosis (abortus, melitensis, suis); hemophilus infections; acute gonococcal infections; lymphogranuloma venereum; granuloma inguinale; primary atypical pneumonia; typhus (murine, epidemic, scrub); rickettsialpox.*

Dosage: 2 to 3 Gm. daily by mouth in divided doses q. 6 h. is suggested for acute infections.

Supplied: 250 mg. capsules, bottles of 16 and 100;
100 mg. capsules, bottles of 25;
50 mg. capsules, bottles of 25.

1. King, E. Q.; Lewis, C. N.; Welch, H.; Clark, E. A., Jr.; Johnson, J. B.; Lyons, J. B.; Scott, R.B., and Cornely, P. B.: J. A. M. A. 143:1 (May 6) 1950.
2. Herrell, W. E.; Heilman, F. E.; Wellman, W. E., and Bartholomew, L. A.: Proc. Staff Meet. Mayo Clin. 25:183 (Apr. 12) 1950

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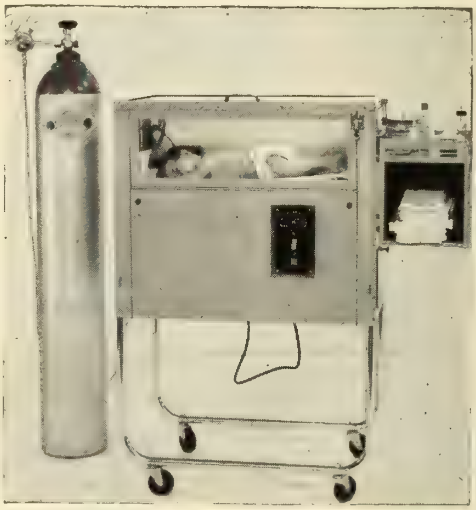

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Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 33 OCTOBER, 1950 No. 10

MILK-BORNE BRUCELLOSIS IN MINNESOTA

C. B. NELSON, M.D., M.P.H., and MARY GIBLIN, M.S.
Minneapolis, Minnesota

THERE have been 3,074 cases of human brucellosis reported to the Minnesota State Department of Health in the ten-year period, 1940-1949. It is estimated that approximately 25 per cent of the reported cases in this state are due to the ingestion of raw dairy products, chiefly raw milk and cream.[5] Therefore it can be assumed that in approximately 767 of the cases reported during this period infection with Brucella organisms has occurred in this manner.

The presence of viable Brucella organisms in market milk, including milk from certified herds, has been demonstrated on numerous occasions. Outbreaks of human brucellosis due to *Brucella suis* in raw milk from cows have been reported by Beattie and Rice,[1] Horning,[4] and Borts.[2] Beattie and Rice state that outbreaks of brucellosis due to *Brucella abortus* (bovine) on raw milk routes are relatively uncommon, and that the occurrence of more than four or five cases on a single raw milk route is rare. Steele and Hastings[7] report an outbreak of twenty-eight cases of human brucellosis traceable to raw milk. *Brucella abortus* (bovine) was isolated from blood cultures from two of the cases. They state that this is the first large brucellosis epidemic due to *Brucella abortus* (bovine) that has been reported. Damon[3] reports the isolation of *Brucella melitensis* from milk of cows.

The Minnesota State Health Department records of cases of human brucellosis attributed to consumption of raw milk indicate that the source of raw milk usually is the herd on the patient's farm or herds belonging to friends or relatives.[5] However, during the ten-year period, 1940-1949, there were 450 reported cases of brucellosis in which the source suspected by the reporting physician was raw milk from a supply other than the herd on the patient's farm. Included in these 450 cases were ninety-six cases attributed to a common source in forty-one dairies. Twenty-eight dairies were the source of two cases each; nine dairies, three cases each; two dairies, four cases each, and one dairy, five cases. In most instances the cases were spread over a considerable period of time.

The outbreak of three known cases of brucellosis in patrons of a raw milk dairy is reported in more detail since *Brucella abortus* (bovine) was isolated from raw milk purchased at a store selling milk from the suspected supply (Table I).

Case	Age	Date of Onset	Agglutination with Brucella antigen	Blood Culture
1	65	8-15-49	(9-23-49) +1:1280	(9-23-49) No growth
2	25	1-50	(4-19-50) +1:1280 (5-2-50) +1:1280	(4-23-50) *Br. abortus* (bovine)
3	42	2-24-50	(3-4-50) +1:5120	(4-10-50) No growth

These three patients all had symptoms compatible with the diagnosis of acute brucellosis. The diagnosis was confirmed in Case 2 by the isolation of *Brucella abortus* (bovine) from a blood culture, and in Cases 1 and 3 by high agglutination titers with Brucella antigen. The possibility of sources of infection other than raw milk from the suspected supply was ruled out by history.

Dr. Nelson is Director, Division of Epidemiology, Minnesota Department of Health.
Miss Giblin is Director, Division of Microbiology, Minnesota Department of Health.

The dairy owner was not co-operative but volunteered the information that he supplied approximately 400 quarts of raw milk daily to his patrons through retail and wholesale trade. Information from the State Live Stock Sanitary Board revealed that the suspected herd had been tested for Bang's disease in 1947. One "reactor" and three "suspects" were found, and the reactor was removed from the herd. At the time of the present investigation the owner refused to have his herd tested or to make arrangements for pasteurization of the milk.* A quart of the suspected raw milk labeled "Natural Milk" was purchased March 29 in the hope of obtaining irrefutable proof that the milk from the herd contained viable Brucella organisms. A sample of this milk examined by Dr. M. H. Roepke, Professor of Veterinary Medicine, University of Minnesota, showed a strongly positive ring test. A portion of the milk was also submitted to the Section of Medical Laboratories, Minnesota Department of Health. Two guinea pigs were inoculated subcutaneously on March 31, 1950, one with the sediment of the centrifuged specimen, the other with cream of the centrifuged specimen. The pigs were sacrificed on May 17, 1950, at which time agglutination was present 1:640 with Brucella antigen in blood from both animals. Cultures from the spleen of both pigs showed Gram-negative, non-motile organisms identified as *Brucella abortus* (bovine) on June 15, 1950.

The above report was sufficient evidence to justify the Live Stock Sanitary Board's placing a quarantine on the herd. This provided that no raw milk could be sold. The owner then arranged for Bang testing of the herd, which disclosed twenty-nine negative animals and two reactors. The reactors were removed from the herd and the quarantine was raised by the Live Stock Sanitary Board.

Summary and Conclusions

An outbreak of three cases of human brucellosis traceable to a commercial raw milk supply is briefly reported. The causative organism, *Brucella abortus* (bovine), was isolated from the market supply of raw milk. The outbreak demonstrates the difficulty that is encountered from time to time by official agencies in obtaining compliance with good public health practice.

Although the cases of human brucellosis that are traceable to raw milk purchased from commercial raw milk dealers will be eliminated by the amended pasteurization law, the cases traceable to private sources of raw milk will not be decreased. For this reason, public health education must continue until universal pasteurization of milk is practiced, including home supplies and milk purchased by the consumer directly from the farm. Apparently, reduction in the number of cases of human brucellosis from all sources in Minnesota continues to be dependent on the reduction of brucellosis in the animal reservoir, namely the livestock population of the state.

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*As of July 1, 1950 the sale of raw milk in Minnesota is prohibited by law,[6] except as purchased for personal use at the dairy farm where it is produced.

THE RIGHTS OF THE COMMUNITY

Every community is entitled to safe water, food, and milk, and protection from unsafe disposal of wastes; to as safe an environment as we know how to provide including pure air; safe streets, homes, places of work, and places of education and recreation; to the best protection we know how to provide from the contagious diseases, including tuberculosis and the venereal diseases; access to good medical care and hospitalization when needed; to the best protection we known how to provide against the special hazards of maternity and infancy; to the best facilities we know how to provide for the healthy development of our children, including correction of crippling physical and mental defects; recognition and treatment of rheumatic fever and other heart disease, and to the knowledge and facilities necessary to prevent as many deaths as possible from cancer, heart disease, diabetes, and the other degenerative diseases.—William P. Shepard, M.D., *National Tuberculosis Association Bulletin*, October, 1949.

THE MANAGEMENT OF STATUS ASTHMATICUS

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STATUS ASTHMATICUS is an acute condition of severe, continuous asthma, unrelieved by injections of epinephrine even when repeated frequently and in increased dosage. When an acute asthmatic attack fails to subside and becomes refractory to the usual sympathomimetic medications which in the past gave relief, the dyspnea becomes more severe, the cough unproductive and the patient remains in a constant asthmatic state. The patient is critically ill and may die unless the attack of asthma is broken. When this occurs, its treatment taxes the ingenuity of the best clinician.

The above condition must not be confused with intractable asthma,[9] a chronic process usually associated with chronic bronchitis, bronchiectasis and pulmonary emphysema. These patients are usually difficult to control by the usual allergic management. The intervals between the acute paroxysms of asthma are seldom free of wheezing.

Status asthmaticus may occur in the acute extrinsic asthmatic as well as in the chronic intractable asthmatic. It occurs more frequently in the chronic intractable asthmatic (1) because of the difficulty in controlling the asthma adequately and (2) because the usual associated pulmonary pathology makes one more susceptible to bronchitic infection. This condition occurs less frequently in the extrinsic asthmatic and then it is usually due to specific sensitivities. When status asthmaticus occurs in the extrinsic asthmatic, the solution of the problem may be relatively simple, representing nothing more than the removal of the offending agent or agents from the patient's environment, or the removal of the patient from them.

Most of the fatalities in bronchial asthma occur in status asthmaticus. Death may be due to asphyxia or cardiac failure, but just as often, perhaps, it is due to exhaustion and dehydration.

The most consistent pathological finding in patients who have died in status asthmaticus[15] is the presence in the small, medium or large bronchi of thick, tenacious, gelatinous secretions which the patient was unable to raise. Much of the bronchial tree may be entirely occluded. In addition to these mucous plugs, edema of the bronchial walls and bronchospasm contribute to this bronchial occlusion.

When these patients are first seen, they give the classical picture[3] of severe asthma. They are usually in a sitting position with the body bending slightly forward from the waist, their hands grasping the edge of the bed or chair. The accessory muscles of respiration are forcibly in use, the face is drawn and ashen. The pallor may at times give way to cyanosis. Perspiration is profuse, for these patients are laboring for breath. Unconsciousness or disorientation may occur suddenly. The patient is terrified because of the repeated failure of the usual therapeutic medications. In addition, the family is anxious. There is a generalized spirit of hopelessness present and, not infrequently, the physician shares this feeling. This period of intense dyspnea may last from a few days to a week or two.

Examination of the chest elicits surprising findings to the uninitiated. Everyone is familiar with the "bandbox" heard in mild cases of asthma where there is only partial but wide-spread occlusion of the bronchi, as a result of which the sounds are widely distributed. In status asthmaticus, one finds areas of diminished and absent breath sounds, areas of quiet that to the experienced observer are ominous. In these patients, areas of the lungs have ceased to function normally because the bronchi serving those portions may be partially or totally occluded by thick, tenacious, gelatinous plugs of mucous. When one listens to such a chest, the need for prompt and vigorous therapeutic measures is immediately apparent.

The basic principles involved in a proper therapeutic approach in the treatment of status asthmaticus are (1) to increase the lumen of the respiratory passageway, and (2) to decrease the minute volume of respiration.

The following discussion sets forth a routine for the treatment of status asthmaticus which has produced the most favorable response.

Hospitalization.—Hospitalization should be insisted upon immediately. This will accomplish

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Read before the annual meeting of the Minnesota State Medical Association, Duluth, Minnesota, June 13, 1950.

several indispensable purposes. First, the patient is removed from intimate contact with over-anxious relatives. Further, the hospital offers trained personnel, equipment and medicinal agents not readily available in the home.

Although most of the patients fall in the chronic intractable or infectious group, environmental factors should not be overlooked. Thus, the removal of the patient from the environment in which this condition developed may frequently be beneficial. If the status asthmaticus is due to pollen in the air, air conditioning with filtration is desirable if available. The ordinary precautions for the preparation of a dust-free room should be adhered to. It is wise to cover both the pillows and mattress with non-allergenic encasings. Flowers should be prohibited.

Reassurance.—As stated earlier, the patient is both terrified and panicky. This in turn will increase his exertional dyspnea. The patient fears that every breath may be his last. He must be reassured that the attack is controllable and that his cooperation is necessary to obtain results. A friendly, sympathetic and reassuring attitude on the part of the attending physician is a most vital and helpful therapeutic aid.

Cessation of all Epinephrine and Ephedrine Compounds.—We believe that this is the most important procedure employed. If nothing else can be done, this is the one thing to do. These patients have already received epinephrine, epinephrine-like, ephedrine and ephedrine-like compounds, to the point of nervous irritability and toxicity. They are "epinephrine-fast." Further epinephrine will only increase the patient's irritability and nervousness, produce tachycardia, palpitation, headache, pallor and weakness, with no effect on the dyspnea itself. The continuance of status asthmaticus proves the medication to have been ineffective, and a new start should be made. All sympathomimetic medications should be removed for a period of forty-eight to seventy-two hours, preferably the latter, and only then reintroduced. During this interval there is a strong temptation to reintroduce epinephrine, especially when the patient continues in relatively severe asthma and substitute therapy is of relatively little value. However, the discontinuance of epinephrine should be adhered to strongly during this interval.

When reintroduced, small quantities should be given, 0.3 to 0.5 c.c. (5 to 8 minims), and repeated as often as necessary, even within fifteen or thirty minutes. The smaller quantities will obviate the side effects of epinephrine and will produce the same therapeutic effect as larger quantities. It is preferable to use the aqueous (1-1000) epinephrine, rather than the prolonged type (1-500) in sesame oil, peanut oil, or gelatin. In a hospital there is no particular advantage in using the prolonged acting preparations for there is always the danger of overdosage from too rapid absorption, especially if the syringe is wet, with resultant side effects.

The problem in the treatment of status asthmaticus resolves itself into keeping the patient alive and as comfortable as possible for the next forty-eight to seventy-two hours following admission, for whatever the cause, when epinephrine is again introduced, invariably the patient will respond, especially if the other measures recommended in this paper are adhered to. If there is no accompanying infection in the bronchi, or the infection is minimal, the response will usually be immediate and fairly complete. If the accompanying infection is moderate, the response to epinephrine will be modified. The greater the accompanying infection, the less the response, but there will be a response. In the presence of infection, methods to combat the infection should be instituted immediately. The use of antibiotics, which are of great importance here, will be discussed subsequently.

Hydration.—This extremely important phase of treatment is almost always neglected. These patients are dehydrated.[12] They have been sick for a number of days without sleep, food or fluids. This is evidenced on admission by the very noticeable relative increase of the blood hemoglobin, red blood cell count, white blood cell count with a normal differential, along with a minimal increase of body temperature of about a degree. These soon return to normal after adequate hydration within twenty-four to forty-eight hours.

We routinely give 2 to 3 liters of 5 per cent glucose in distilled water and in isotonic sodium chloride solution alternately during the first two or three days of hospitalization. The addition of fluids will replace lost body water and bring about a positive water balance. They tend to thin out the bronchial secretions and thus promote expectoration of the thick, gelatinous, inspissated mucous plugs in the bronchi. The dextrose used in hydration therapy will supply needed calories and replace liver glycogen, badly depleted because of the previous repeated injections of epinephrine and the failure of the patient to take adequate nourishment. Glaser[4] suggests that this depletion of glycogen may be a factor in the development of epinephrine fastness.

In the past, hypertonic dextrose[6,8] solutions up to 50 per cent, given in quantities from 50 to 100 c.c., at intervals of six to eight hours, have been recommended. The idea was to produce dehydration of the lungs and thus lessen the edema of the bronchi. However, its accompanying effect of dehydrating the patient generally and thickening the bronchial secretions defeated one of the major objectives of treatment—the evacuation of the thick, inspissated mucous plugs. Because of this effect, the use of hypertonic dextrose solutions should be discarded.

Aminophyllin (Theophylline with Ethylenediamine).—The bronchodilating effect of aminophyllin intravenously at times is life-saving. Initially, the patient should receive 0.25 gram (3¾ grains) in 10 c.c. of diluent given slowly, preferably through a fine needle. If this dose is sufficient for symptomatic relief, it can be repeated every four to six hours. If relief is only partial, the dosage may be increased to 0.5 gram (7½ grains) in 20 c.c. of diluent. When given slowly and regulated to the patient's tolerance, the toxic effects of aminophyllin, such as vertigo, faintness, headache, tachycardia, palpitation, extreme flushing and sense of heat, substernal distress, and nausea and vomiting may be obviated. If they do occur, they may be minimal. In uncomplicated asthma, aminophyllin is not a dangerous drug. However, in the presence of cardiac complications caution must be used. The need for repeated intravenous injections of aminophyllin may be lessened by inserting 0.5 gram of aminophyllin per liter of fluid during the period of venoclysis.

The drug is also moderately effective when given rectally, either in suppository form or as a retention enema. The suppository contains 0.5 gram of aminophyllin. One-half gram of aminophyllin powder dissolved in 30 to 60 c.c. of tap water may be used as a retention enema. Given in this manner, it can be repeated every 6 to 8 hours.

Continuous intravenous aminophyllin in status asthmaticus has recently been introduced by Goodall and Unger.[5] Dosage consisted of up to 2 or 3 grams of aminophyllin dissolved in 2,000 c.c. of 5 per cent glucose in physiological salt solution or distilled water. The solution is given continuously over a twenty-four-hour period for several days until relief is afforded.

We see no particular advantage to this method, because the same coverage can be achieved by employing repeated intravenous injections of aminophyllin togther with rectal suppositories or retention enemas, without the extreme inconvenience to the patient of having a needle in his vein continuously for three or four days. This is extremely important when considering that the patient in status asthmaticus is already in extreme discomfort because of his marked dyspnea.

Occasionally patients may become refractory to the intravenous administration of aminophyllin. Recently Prigal[10] has recommended the aerosolization of aminophyllin when this occurs. The contents of a 10 c.c. (0.25 gram) or 20 c.c. (0.5 gram) ampule are nebulized at six- to eight-hour intervals. We have employed this procedure in a limited number of patients. Definitive judgment as to its relative value remains to be determined.

As in the case of "epinephrine fastness," when patients become refractory to aminophyllin by intraveous injection or aerosolization, its use should be discontinued, as further dosage will serve only to increase its toxic effects.

The use of intravenous aminophyllin in the treatment of children may be employed in the same manner, the dosage being .006 gram per kgm. (1/20 grain per pound).

Inhalation Therapy.—Inhalation therapy is directed toward decreasing the minute volume of respiration. It rarely of itself will interrupt status asthmaticus, one must be extremely careful to make the patient more comfortable by diminishing the extreme respiratory effort caused by the anoxia, by enriching the surrounding air with oxygen.

Oxygen may be employed with a tent, nasal catheter, or B.L.B. mask. At times, patients will rebel against the use of a tent because of a feeling of claustrophobia. This may increase their anxiety and nervousness, with resultant increase of their exertional dyspnea.

Barach[1] introduced a mixture of 80 per cent helium and 20 per cent oxygen, a mixture which has one-third the density of air. It therefore should diffuse more readily through the partially obstructed bronchioles. Its cost, however, is a limiting factor and, in our personal experience, oxygen has been equally as good.

Sedation.—In employing sedation, one must guard against over-sedation. However, measures to insure sleep and to overcome nervous tension are very necessary. We have used Demerol repeatedly, but with considerable caution. Used judiciously, it has proven to be a most effective drug. Its action[2] has apparently been twofold, sedation and a direct bronchodilating effect. In status asthmaticus, one must be extremely careful about respiratory depression and depression of the cough reflex, effects which are relatively minimal with Demerol as compared to the opiates.

In this connection, mention should be made concerning the use of morphine. In the past it has been used extensively, occasionally beneficially. However, one can say it should never be used in asthma, and especially so in status asthmaticus, where the patient is anoxic, exhausted and battling for life. Morphine depresses the respiratory center, diminishes the cough reflex and dries the bronchial secretions (especially if given with atropine). Thus, morphine actually promotes further anoxia—to the point of asphyxia—which is the very thing we are trying to combat. Because of the stagnation of the bronchial mucous plugs, the patient literally drowns in his own bronchial secretions. Vaughan[14] and Lamson[7] have shown that in many deaths due to asthma during status asthmaticus, morphine was given prior to death. The use of all other opiate derivatives should also be avoided.

The dosage of Demerol should be regulated with extreme care. Adults should never be given an initial dose exceeding 50 mgm. intramuscularly. It may later be necessary to increase to 75 mgm., and only rarely to 100 mgm. This can be repeated at six- to eight-hour intervals. It should be used for relatively short periods, three, four or five days, because of the possibility of addiction.[14] The routine use of Demerol for the relief of the usual acute attacks of bronchial asthma, as has been advocated, is to be condemned because of its properties of addiction. When using Demerol we have avoided using other sedatives, because of the possibility of over-sedation and the depression of all body functions.

Other sedative measures have been advocated by others.[15] Our experience with them is limited, but we will mention them briefly.

(1) Paraldehyde may be given rectally, 15 c.c. in 100 c.c. of olive oil at twelve-hour intervals.

2. Barbiturates may be given at four- to eight-hour intervals.

3. Chloral hydrate, 1 gram, and sodium bromide, 4 grams, may be given at four-hour intervals until the patient becomes drowsy; then stop.

4. A mixture of ether, 2 oz., and olive oil, 4 oz., mixed thoroughly, may be administered as a retention enema.

If any of the above are employed, only one should be used and not a combination. If used properly and carefully, sedation is extremely beneficial and life-saving. Its drastic use in an already exhausted and anoxic individual may be dangerous and disastrous.

Expectorants.—Methods which will thin out bronchial secretions and thus will help clear the bronchi of their mucous plugs are highly desirable. The best medication to achieve this is potassium iodide. It has been shown by Tuft[13] that the iodides are excreted in the bronchi in high concentration. Ten to fifteen drops of a saturated solution of potassium iodide taken orally are recommended four times daily until the patient is free of expectoration. If the patient is unable to take the drug orally, it may be given intravenously as sodium iodide. One gram may be added to a liter of the solution for intravenous administration by the drip method. If there is an intolerance to potassium iodide, enteric coated ammonium chloride tablets in 0.5 gram doses may be given four times daily.

In children, emetic doses of ipecac will produce forceful emesis and with it expectoration of mucous and clearing of the bronchial tree.

Manual Elevation of the Diaphragm.—In the presence of status asthmaticus physiological pulmonary emphysema is present. There is trapped air because of the partially and completely occluded bronchioles. Manual elevation of the diaphragm, as suggested by Gay,[2] is often followed by subjective relief as well as an increase in the vital capacity from 200 to 1000 c.c. The procedure is carried out as follows: the palm of either hand is placed underneath the ribs on one side and pushed upward and inward during the latter half of expiration. Then this is repeated on the other side. The escape of trapped air may frequently be heard as a wheeze. This procedure should be repeated three to four times daily.

Bronchoscopy.—Although we have not had occasion to use bronchoscopy, its use should not be overlooked. The mechanical removal of thick, tenacious mucus from the bronchi would appear to be a most reasonable treatment. Bronchoscopy has undoubtedly been restricted in its use because patients seem so gravely ill that any procedure which places a greater strain upon them would almost appear to be inadvisable. In skilled hands it is a relatively safe procedure and the risk is much less than that of possible asphyxia from the disease. However, preoperative medication should be kept at a minimum. Morphine and opiate derivatives are definitely to be avoided.

Antibiotic Therapy.—With the advent of antibiotic therapy, another powerful weapon has been added. As stated earlier, most patients in status asthmaticus belong in the chronic intractable or infectious group. Frequently an accompanying infection of the bronchi has been the cause of the status asthmaticus. The presence of infection is noted clinically by an increase in body temperature, elevated sedimentation rate, the presence of muco-purulent or purulent sputum, and leucocytosis with an increase in the polymorphonuclears.

Our routine is to use combined parenteral and aerosol penicillin therapy, so that the penicillin may reach the more superficial and deeper lying tissues of the bronchi in high concentration. Fifty thousand units of penicillin in 1 c.c. of distilled water, to which 3 or 4 drops of glycerin are added to stabilize the aerosol, are nebulized every three hours, with a six-hour interval during the sleeping hours. If the penicillin aerosol is to be continued after the epinephrine-fastness has been broken, it is advisable to precede the inhalation of penicillin by the inhalation of a few breaths of 1:100 epinephrine, or 1:200 isuprel, so as to widen the lumen of the lung. Very often, this therapy will have to be prolonged for five to ten days following responsiveness to epinephrine until the patient's bronchial secretions are free of discoloration and are at a minimum. At the same time, penicillin is administered parenterally with daily injections of 300,000 units of prolonged acting penicillin.

Because of the possible toxic effects of streptomycin and dihydrostreptomycin, its routine or combined use with penicillin is initially avoided. It is added only when the sputum remains purulent or in the presence of pencillin-resistant organisms in the sputum. Dihydrostreptomycin, because of its lower incidence of toxic effects, is then given by aerosolization in seven divided doses of 1 c.c. each per twenty-four-hour period in a similar manner as penicillin. The total dose per day ranges from 0.5 gm. to 1.5 gm. Its parenteral use is withheld. In our experience it has rarely been necessary to use streptomycin or dihydrostreptomycin.

As yet we have had no opportunity to use bacitracin aerosol, used successfully by Prigal,[11] and the newer orally administered antibiotics, aureomycin, chloromycetin, and terramycin.

Antihistaminics.—The recently introduced antihistaminic drugs are of little or no value in this condition. In fact, they are contraindicated, as they possess an atropine-like effect in drying up bronchial secretions, and thus aid in producing mucous plugs. Before substituting these medications, the action of which is neither so certain nor so prolonged, it is well to remember that epinephrine and epinephrine-like compounds are the most powerful antihistaminic agents now in use.

In summary, when one is confronted with a patient in status asthmaticus, the danger of death is ever present. The judicious use of the above procedures may be lifesaving.

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THE ROENTGEN DIAGNOSIS OF SILICOSIS

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I AM GRATEFUL for the honor and conscious of the responsibility of speaking to you on this occasion, a period dedicated to the memory of Russell D. Carman. This is not the time for me to attempt to refresh your minds concerning Dr. Carman's contributions to medicine. Many of these are a matter of record. Dr. Carman was a physician, scientist and teacher. He possessed such qualities as understanding, honesty, reason and justice, which were a source of inspiration and satisfaction to those of us who were privileged to know him. Honorary lectures such as this provide an opportunity for all to pause and contemplate the achievements of one of our great physicians, an opportunity for us to rededicate our lives to those things that will stimulate our greatest efforts toward improving medicine and through it providing greater service to our fellow man.

The subject which I have chosen for presentation is one of timely interest, although some of the symptoms and changes in the lungs produced by inhalation of dust in certain occupations were described by medical writers many centuries ago.

Our ideas concerning the prevention and control of disease have undergone a remarkable transformation during the past fifty years. The modern doctor, according to the late David Riesman, is no longer being called upon to treat illnesses which have disappeared or are rapidly vanishing. His work is to take on new orientation, that of guardian of the health rather than curer of ills for after all, "to guard is better than to heal; a shield is better than the spear."

Today in this industrial age, as never before, many of the forms of occupational disease fall within the province of the family doctor as well as the industrial physician. Our task is to be aware of the hazards affecting our working people in order that we may help make the industrial population a source of strength and not a source of weakness. We have to insure that as a result of modern industry and commercial procedure and environment, we do not saddle ourselves with a number of disintegrated and therefore unhappy, discontented men and women.

One of the earlier references concerned with dangers of dust exposure is Pliny's[61] description of the devices used by refiners to prevent inhalation of the "fatal dust."

In 1556, Agricola[1] described the perils of mining and the pestilential air breathed by miners. Ramazzini[63] in 1700 called attention to the possible relationship between dust inhalation and consumption. In the Renaissance, physicians and mining engineers were aware that the metal miners suffered from shortness of breath and died prematurely. Anatomists had described "heaps of sand" in the lungs of stonecutters and they called the condition phthisis. Thackrah,[74] in 1831, noted that sandstone workers died before forty, but there was no unusual instance of lung diseases in brick and limestone workers. Although the effect of various dusts in the lungs was recognized previously by other writers, Zenker[84] in 1867 is given credit for having coined the word "pneumonokoniosis." Shortly thereafter, in 1870, Visconti[77] described a pathological condition of the lungs resulting from inhalation of silica which he called "silicosis." In more recent years, numerous studies and investigations have been carried out in many countries. In the United States, the investigations carried on at the Saranac Laboratory under the direction of the late LeRoy U. Gardner[25] have added tremendously to our knowledge of the development of pneumonoconiosis and silicosis in the experimental animal.

Pneumoconiosis

Pneumoconiosis is a broad generic term used to describe all forms of pulmonary reaction to dust lodging within the lungs, with no implication as to character, severity, or effect on function. Certain of these reactions may be demonstrated by a roentgen examination of the chest, but in most instances they are entirely non-specific, are unaccompanied by formation of progressive fibrosis, and are of no clinical significance. In the light

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Russell D. Carman Memorial Lecture presented at the annual meeting of the Minnesota State Medical Association, Duluth, Minnesota, June 12, 1950.

of present knowledge, however, we recognize at least two clinically important specific pneumoconioses, namely, silicosis and asbestosis, as well as a number of benign pneumoconioses resulting from the inhalation of a variety of inert but radiopaque dusts. The former may be productive of disability, whereas the latter are of clinical significance only because they may lead to errors in diagnosis through their ability to produce upon the roentgenogram a nodular pattern at times indistinguishable from that occurring in silicosis.

Silicosis

Silicosis is a form of pneumoconiosis which is thought to be due to the specific action upon the lung tissue of chemically free silicon dioxide in finely divided form and which produces changes that can be demonstrated in many instances on a roentgenogram. It is probable that all dusts, with the exception of chrome, free silica and certain silicates, produce very few changes in the lung that can be recognized with assurance on the roentgenogram.

In order to produce lung changes it is necessary for the silica dust to reach the lung alveoli, to get into the interstitial tissues either through the agency of macrophages (dust cells) or by way of alveolar pores, and to be deposited in sufficient concentration at some spot where either through its inherent physicochemical properties or together with some other factor or factors, as yet unknown, an abnormal amount of fibrous tissue formation may be stimulated.

In the early days, the tissue reaction to quartz dust was considered to be due to the sharp-pointed particles. This concept was invalidated when diamond dust and carborundum were shown to be benign. Then came the solubility theory of silicosis. This concept considers silica as slightly soluble, which in turn stimulates the formation of fibrous tissue. Although this theory has served as an excellent working hypothesis, several inconsistencies have been pointed out by Evans and Kascht.[20] These include:

1. A local concentration of ions, or a dissolution of the dust deposit has not been demonstrated.
2. Several benign silicates supply a greater number of soluble ions to the local tissue than does quartz.
3. There does not appear to be a constant relationship between solubility and the degree of fibrous tissue formation.
4. Silica in solution in the tissues would be precipitated as sodium silicate, which is benign.
5. It would appear that a fibrotic nodule would offer little functional defense to a substance in solution, as diffusion would progress through such a barrier.

In view of the above objections, Evans and Kascht[20] recently have examined various substances commonly responsible for the production of the pneumoconioses. They failed to find anything in the nature of a common chemical or physical property, such as solubility, hardness, sharpness, or known chemical reactivity, in the tissues that could explain the production of the characteristic fibrotic nodule. They found that the dusts known to produce fibrosis were composed of substances whose most stable form was that of an asymmetric crystal, and therefore, potentially piezoelectric. The benign dusts were either amorphous or of crystalline classes which are not piezoelectric.

Piezoelectricity is defined as being that property possessed by certain asymmetric crystals which allows a transformation of energy, in either direction, mechanical and electrical energy, Evans and Kascht.[20] If such a crystal is distorted by pressure, an electric polarity is produced, and conversely, if such a crystal is placed in the proper electric field, a distortion of the crystal surfaces is produced. There may be many related secondary effects. Evans and his associates have carried out a number of experiments which seem to support the thesis that asymmetric crystalline crystals under certain circumstances produce fibrosis.

Although many problems present themselves for future clarification, Evans and his co-workers,[19,21,22] have shown the following:

1. The ability of foreign materials to produce fibrogenesis is correlated with their crystalline structure.
2. Those tested amorphous materials and materials whose crystalline state possesses a central point of molecular symmetry (symmetrical crystals) are nonfibrogenic.
3. Those tested crystals which do not possess a central point of symmetry (asymmetrical crystals) and possess piezoelectric properties are fibrogenic.
4. Several materials previously untested bio-

logically, selected for their physical properties, were tested and shown to be fibrogenic.

5. Fibrous tissue reactions are considered to be stimulated by releases of energy in mechanical or electrical states within tissue.

Parmeggiani,[51] in 1947, writing on the same subject states that since silica nodules also are formed in organs free from any mechanical activity, such as the spleen, liver, and lymphatic glands, it is not possible to explain the tissue damage by piezoelectric action due to pressure on the crystals.

I am not well enough informed about the biological effect of piezoelectricity on tissues to have an opinion as to whether the theory being tested by Evans and his co-workers is correct, but I enthusiastically believe that their investigations should be encouraged and supported. If their present concepts prove to be right, many of the baffling problems concerned with the control of silicosis may be explained and some of them solved.

Pathogenesis

Although it cannot be stated with certainty whether the effect theory is responsible for the tissue responses in silicosis, chronic pulmonary disease of the type under consideration is dependent upon an adequate concentration of dust exposure maintained for a sufficient period of time. The rate of development will be influenced by the adequacy of the drainage system of the lung.

The process by which the phagocytes and macrophages carry off the dust particles has been well described by Gardner[30,32] and others.

Inhaled dust first exerts its influence on living cells primarily within the bodies of the alveolar phagocytes, and it is here that fundamental differences due to the physicochemical composition of the irritant become evident. Inert substances, in which category the great majority of dusts belong, provoke no structural changes within the cells. In contradistinction, free silica exerts a specific effect. Degenerative changes, easily confused with those in the "epithelioid" cells of tuberculosis, quickly become evident. The enlarged cells contain visible lipoid. Their nuclei repeatedly divide, and giant cells comparable to the Langhans' giant cells of tuberculosis are formed. Eventually these migrating phagocytes concentrate the silica in and about the pulmonary lymphatics, where the toxic particles, either directly or indirectly stimulate connective-tissue proliferation, with the resultant formation of microscopic silicotic nodules situated in the immediate vicinity of the lymphatic trunks.

At this stage the only general influence of the disease thus far discovered is the increased likelihood that the more advanced changes of silicosis will result from the continued inhalation of silica-laden dust. After sufficient reaction has developed in the lymphoid tissues, the flow of lymph is retarded. The alveolar phagocytes, however, continue to take up fresh particles of dust but, due to their apparent inability to enter the lymphatic vessels, collect upon the walls of the air spaces proper. Once again, the silica exerts its specific effect, causing proliferation of connective tissue and the formation of parenchymal silicotic nodules. Microscopically the nodules are seen to be composed of hyaline collagen fibers and are evenly distributed throughout the lungs (Gardner.[32]) Such, in brief, is the pathology of simple silicosis.

Tissue reactions occur along the lymphatics accompanying the pulmonary vessels and bronchi, within the interstitial tissues and along the pleura.

From an examination of the mineral particles which have gained access to the lung it seems that the protective mechanisms of the respiratory tract exclude most of the particular material greater than 10 microns in diameter. Likewise it is accepted generally that the smaller silica particles, 0.5 to 2.5 microns in size, are more likely to produce lung damage than are the larger particles. It is believed by some investigators that certain dusts (diluents or contaminating dusts) may have modifying effects upon the action of free silica in the lung tissues; for instance, carborundum and aluminum oxide may retard and alkaline soap powders may accelerate the usual reaction to free silica. There is some uncertainty about this hypothesis, however, as Gardner[30] says that "definite proof of accelerators to the action of silica is yet lacking; it has been suggested that cases of 'rapid silicosis' in human beings may be due to excessive exposures to silica or unusual fineness with or without associated infection." It is evident, therefore, that in order to evaluate a dust hazard one must have a knowledge of the behavior of the dust in the course of its production and while it is suspended in the air, and its behavior in the respiratory system, as well as an understanding of its specific action in the lung tissue (Hatch.[37]) *The knowledge that a workman is exposed to dust released in the processing of a material containing free silicon dioxide is insufficient evidence in itself to justify one in stating that the atmosphere at the breathing level contains harmful quantities of free silica dust.*

The reasons for this observation are supported by ventilation and sanitary engineers familiar with many of the differences in the behavior of dusts and some of the factors concerned may be abstracted as follows:[37]

1. The composition of the air borne dust may differ from that of the parent material.
2. The composition of the dust retained in the deeper portions of the lung may differ from that of the air borne dust.
3. The amount of dust retained in the respiratory system and the relative amounts retained in the upper portion of the tract and that found in the alveoli vary with different dusts.
4. The particle size of the alveoli dust differs from that of the air borne material.
5. The flocculating properties of dust vary and this affects the retention in the respiratory tract, its penetration to the alveoli, and the behavior of phagocytes toward the dust.
6. The rate of phagocytosis varies from one dust to another.
7. The toxicity of silica is apparently reduced in the presence of certain other materials.

According to Hatch[37] the relative significance of these several aspects of dust behavior is not fully understood but their importance has been demonstrated both in the laboratory and in industrial experience.

The modifications occurring from the inhalation of dusts containing mixtures of free silica and other minerals may be quickly passed. The primary pathology is the same, the essential differences being simply the result of co-existing silicosis and a benign pneumoconiosis, each of which alters to some extent the appearance of the other. It should be recalled, however, that some inert dusts, when mixed with free silica, cause varying degrees of retardation in the development of the silicotic process. At this time the use of aluminum deserves brief but special mention. Denny, Robson, and Irwin[14] were the first to announce the specific inhibitory effect of aluminum. Their animal experiments and those of others,[33] some of which were conducted simultaneously in another laboratory, have demonstrated conclusively that metallic aluminum and aluminum hydrate, when given by inhalation, will prevent the fibrous reaction to quartz. The possible clinical applications of such a discovery are obvious, and have already stimulated considerable investigative work from the standpoint both of prophylaxis and of therapeusis. While a complete discussion of their present status is beyond the scope of this paper, it may be said that further evaluation is required and that aluminum therapy should in no circumstances be applied as a substitute for other and already recognized methods of dust control.

As evidence of the necessity for caution, are the lung changes associated with the manufacture of alumina abrasives reported by Shaver,[72] and the experimental observations of Evans and Zeit[21] on aluminum phosphate.

The alteration of the silicotic process when complicated by the presence of infection is not nearly so simple.[58] The increased susceptibility to tuberculosis in man recorded by Merewether,[48] and proved by the classic animal experiments of Gardner,[25,28] needs no recapitulation. Two facts, however, must again be emphasized: (1) that it is the presence of associated infection which accounts for most of the disability arising from silicosis, and (2) that infection, when it occurs, may manifest itself in either of two ways, namely, by the development of tuberculo-silicosis or of silicosis with tuberculosis.

Tuberculo-silicosis is common and according to Brumfiel and Gardner,[6] whose observations are adequately substantiated both clinically and pathologically, it is "a distinct disease entity with certain characteristics peculiarly its own, in that it is neither silicosis nor tuberculosis nor is it a simple summation of the two." It is the result of the interaction of tubercle bacilli and silica in the same area, with the resultant formation of tuberculous granulation tissue together with a modified type of silicotic reaction. Pathologically, it is characterized by the formation of slowly developing, well defined, hard or rubber-like areas of massive conglomerate fibrosis surrounded by a marked degree of emphysema. On microscopic section, nodules are found embedded within dense hyaline fibrous tissue which virtually obliterates the normal pulmonary structures. The tuberculous component of the process sometimes is identified easily by the presence of widespread caseation, but not infrequently it is only after painstaking search that isolated, non-caseous tubercles or occasional clumps of acid-fast bacilli are discovered.

Silicosis with tuberculosis, by comparison to tuberculo-silicosis, is rare, but it does occur in one of two forms: either (1) as the result of infection superimposed upon a progressive and still active silicosis or (2) as the result of infection superimposed upon an old and already stabilized silicotic process.

In the first instance the infection becomes acute, and its course is usually one of uncontrollable extension. In the second, tuberculosis develops upon a background of an already stabilized silicosis in which the quartz particles are presumably completely isolated within their fibrous nodules and thus exert no effect upon the superimposed infection. We have then simply the coexistence of silicosis and tuberculosis within the same individual, but without modification or acceleration of either disease process by the other.

The effect of silicosis upon non-tuberculous infection is less well documented. It cannot be denied with finality that non-specific inflammatory reactions within silicotic lungs occasionally may be the precursors of conglomerate areas of fibrosis. Proof, however, is lacking, and the meager available evidence is opposed to such an assumption. Pierpont[60] has demonstrated that in his iron-mining area the incidence of pneumonia is no greater than in the general population, and that the behavior of the disease when it does occur is unaltered by an underlying silicosis. Similarly in rabbits it has been shown that silicosis exerts no effect upon their susceptibility to infection with Type III pneumococcus.[78]

On the other hand, Gardner,[32] after microscopic examination, was able to discover in only 60 per cent of cases showing massive conglomerate fibrosis, indisputable evidence of tuberculous infection. Perhaps in most if not all of the remainder, the silicotic fibrosis had obscured the tuberculous component of the process, and it was his feeling that an underlying tuberculosis was the etiologic factor accounting for at least the majority of massive fibrous lesions.

Roentgen Considerations[55]

It is generally conceded that the roentgenographic examination, properly done, is the most precise method at our command for demonstrating pathological changes produced by pneumoconiosis or silicosis in the living individual. There are, however, many other conditions that produce shadows in the roentgenogram which may simulate some of the various shadows found in pneumoconiosis.[54] In order to evaluate correctly the various shadows observed in a roentgen study of the chest, it is necessary for one to possess some knowledge and experience concerning such an examination, and certain information about the patient being studied. Some of the more important requirements may be enumerated as follows:

1. A knowledge of the anatomy of the chest and some of the physiological manifestations of the various structures contained therein; an understanding of the histology of the lungs and of their lymphatic system.
2. A thorough familiarity with roentgenoscopic and roentgenographic appearances of the normal structures of the chest and their permissible variations.
3. A clear perception of the pathology of pneumoconiosis and of lesions that give a somewhat similar roentgenographic appearance.
4. Some knowledge of the history of the individual, especially the occupational record and familiarity with the physical signs in the particular patient.
5. Some information concerning the industrial process that is responsible for the production of the dust. Dust counts at breathing levels and chemical analyses of the dust are exceedingly important when available.

If all of the above information is available, one should be able to render a diagnosis which although presumptive is likely to be correct in the majority of instances. Very often, however, one gives an opinion on insufficient data and in so doing referring physicians become confused and injustices occur.

I have always regarded the roentgen examination as a consultation, and used as such it is likely to be more valuable. An ideal program for the diagnosis of pneumoconiosis in the living would include a study by a group, the members of which would be a general physician, a rhinologist, a bronchologist, a clinical pathologist, a specialist in tuberculosis, a physiologist interested in pulmonary function, an engineer expert in industrial hygiene and a general roentgenologist. Such a program is ambitious. Thus, in the majority of instances the referring physician tells the individual that he has pneumoconiosis or silicosis on the basis of a history of dust exposure, a physical examination which is thought to exclude other conditions that might produce similar symptoms, and the presence of abnormal shadows in roentgenograms of the chest which are compatible with those found in pneumoconiosis. The fact that diagnoses are made in this manner places a tremendous responsibility on the roentgenologist, for he must not only describe the roentgen appearances, but after he has done so, he must correlate other information which has been supplied to him with the roentgen observations, and arrive at a tentative or presumptive diagnosis. This is a safe procedure if we, as radiologists, fulfill our obligations to the referring physician and patient.

Criteria for Diagnosis[58]

The diagnosis of silicosis rests primarily upon a positive history of sufficient exposure to free silica dust plus the roentgenologic demonstration of characteristic deviations from the normal within the lungs. Physical and laboratory examinations are then required to exclude other conditions producing similar roentgenographic changes. Once the diagnosis is established, physical examination is required to determine the general physiological effect of the pulmonary condition and to determine whether any disability has resulted therefrom. Differences in individual incentive to work, the natural retardation of physiological responses with advancing age, and the accrued evidence to show that ordinary, slowly developing, simple silicosis is usually in itself nonproductive of a diminution in ventilatory capacity, all combine to make an accurate estimate of the latter an extremely difficult problem.

Machle,[44] however, has shown that the inhalation of the more active dusts results in certain changes in the behavior of the lung which favor retention of the very fine particles in larger numbers than would be expected to occur on a theoretical basis alone. The change is one of bronchiolar constriction, which leads to reduction in pulmonary volume and if continued leads to stasis with its attendant pathological changes. This is the type of observation which we hope to learn more about from pulmonary function studies.

Classification

Before discussing the roentgenographic appearances, it is necessary to say a few words about classification of silicosis as observed in the roentgenographic studies. There are many different ones in use. The most recent has been described by Fletcher[24] and his associates, who state that it may be necessary to have systems of classification for the various types of pneumoconiosis in men exposed to different dusts in various industrial processes. We have given the subject of classification or roentgen appearances considerable thought and feel that any classification used should not place too much emphasis on the roentgen observations, except in those instances in which there is good evidence of infection complicating the silicosis. A simple classification that has worked well for us for the last ten years is: *simple silicosis* and *silicosis with infection. It should be borne in mind that one cannot from a study of the chest by present roentgen methods give any reliable opinion as to the extent of disability.*

Simple Silicosis

The characteristic lesion in silicosis is a circumscribed nodule of hyaline fibrosis. The earliest lesions are invisible or are recognizable only microscopically or with a magnifying glass.[30] They are deposited along or within the lymph channels where they may impede lymphatic flow.[26,79] Gardner[32] states that when the lymph flow is retarded the phagocytes do not enter the lymphatics but collect here and there over the walls of the air sacs. Parenchymatous nodules may then develop which ultimately reach a size of 3 to 4 mm. in diameter. Pathologically, the nodules have well defined borders except when there are accumulations of non-siliceous dusts.

The earliest roentgen lesion that I accept as evidence of simple silicosis is the small, discrete, multiple shadow, 2-6 mm. in diameter, which is more or less uniform in size and density and does not disappear in a roentgenogram made with slight rotation. *Shadows that disappear with slight rotation are likely to be vascular.* The blood vessel shadows are denser and their borders are more sharply defined than are those of nodules. The shadows of the silicotic nodules are usually distributed along the vascular channels and the bronchial tree of both lungs, and at times they may be limited largely to one lobe. Not infrequently, even though a bilateral distribution of the shadows occurs, one does not see them in the apical, peripheral and lower portions of the lung fields.

The roentgen appearance of the shadows of the silicotic nodules are not as characteristic as one would wish. Some are round, some oval, some irregular, some large and some small. Most of the lesions have a uniform density, but some have shadow densities in their centers simulating that produced by calcium. The shadows of these lesions are called nodulation, which unwittingly implies that they can be distinguished from mottling due to tuberculosis or some other infectious process. I frequently have found that the periphery of the nodular shadows (silicotic) is so ill defined that in itself it cannot be differentiated from mottling in miliary and other types of tuberculosis and small shadows due to a generalized metastatic malignancy. In most instances, however, a correct diagnosis can usually be arrived at by correlating the roentgen findings with the history and clinical data.

One of the interesting questions that arises concerning the silicotic individuals as seen by the roentgenologist is that not all of them develop generalized nodulation that can be seen on the roentgenogram. This apparently is true even when individuals are working under similar conditions in the same industry, and up to the present time, no adequate explanation has been made.

When nodulation occurs, the nodules may or may not show progressive changes. In a few patients who have been followed for fifteen years, we have observed the pattern of nodulation replaced by massive shadows with either complete or almost complete disappearance of visible nodular shadows on the roentgenogram. Just how often this occurs will be determined only after years of serial studies.

I have always been interested in whether nodulation is more likely to develop in the younger or the older individual. This question is likely to be answered as more experience with serial studies is obtained. My observations in one industry (almost pure silica) over a period of fifteen years tends to show that nodulation does occur more frequently in the young individual. These nodules have been observed in individuals who have had a silica dust exposure of five to ten years. One wonders whether the nodulation seen in some of the older individuals who have worked for longer periods may likewise have developed during the five to ten years' exposure period and in certain instances failed to progress.

Generalized nodulation is often present with very little, if any, clinical evidence of disability. Such an observation is extremely important to keep in mind for it will help to prevent such individuals from being thrown out of work and placed on compensation. Experience with such individuals has shown that if they are allowed to continue to work in a healthy atmosphere, the lesion may not progress, no unusual disability develops, and a family catastrophe or hardship due to loss of adequate compensation and unhappiness is prevented.

These nodules, uniformly distributed throughout the pulmonary parenchyma, form a characteristic shadow pattern, and *the demonstration upon the roentgenogram of this generalized nodulation is, from the radiologist's point of view, fundamental to the diagnosis.* There may or may not be associated enlargement of the hilar lymph nodes, despite the fact that it is in the lymphatic tissues that the earliest silicotic nodules have been shown to develop. These early nodules, however, by their very fibrous nature, are destined to cause eventual contraction, and in cases of slowly developing silicosis it may no longer be possible to demonstrate hilar lymph node enlargement by the time the parenchymal nodules are grossly visible.

Another lesion generally included under the classification of simple silicosis is the small conglomerate lesion. Such lesions may result from a combination or coalescence of discrete nodules or the lesion may occur as such primarily.

Conglomerate lesions are usually localized and do not occur in the same portion of the lung in every individual. On the other hand, roentgenographic studies of individuals with such lesions more frequently show them in the upper half of the lung fields. Microscopic examination[32] of the tissues from such areas oftentimes reveals no evidence of infection. The nodules seem to be closer together than in other portions of the lung; they are less uniform in size, and they are embedded in a matrix of diffuse, fibrous tissue having the same characteristic appearance as that forming the nodules themselves. It is possible that the conglomeration may have occurred because the portion of the lung in question was previously damaged by a localized, inflammatory process occurring before or during the early period of the dust exposure.[32] More dust would tend to accumulate in such an area and possibly the nodules would develop irregularly and closer together. Another explanation is that the scar contraction of the silicotic process may be sufficient to produce the conglomerate lesion.

The shadow of the conglomerate lesion in simple silicosis is often difficult to distinguish from that found in silicosis with infection. From the roentgenological standpoint they may be impossible to differentiate in a single examination, whereas serial examinations may or may not show slight changes in the extent of the shadows of lesions that are complicated by an active infection.

The roentgen observations in *simple silicosis* may be summarized as follows:

Trachea: Its shadow is in a normal position.

Heart and aorta: Their shadows are not noticeably affected by the silicotic process.

Domes of the diaphragm: The shadow and movement of the domes of the diaphragm are not affected by the silicotic process unless a coincident emphysema is present.

Hila: The shadows of these structures are as a rule not noticeably changed.

Trunk shadows and linear markings: Slight to moderate variations in these shadows are diffiocult to evaluate.

Lung changes, nodulation and conglomerate lesions: The shadows of *nodulation* (2 to 6 mm. in size) are usually bilateral in distribution. Variations may occur such as a lobar or unilateral distribution.

Shadows of nodules may be difficult to differentiate from those occurring in some types of tuberculosis, metastatic malignancy and fungus infestations, et cetera.[54]

Conglomerate lesions: These shadows are usually found in the upper half of the lung fields and are difficult to evaluate in single examinations. Superimposed metastatic malignancy and lesions due to an active infection may produce similar appearances.

Hyperventilation and emphysema: Such conditions may be present and demonstrable by the roentgen examination. Their evaluation, as to cause and effect from dust exposure, however, is more difficult and does not fall within the province of the roentgenologist.

Silicosis With Infection

In this group are included all cases of silicosis with detectable evidence of infection. It is not always possible in the living patient to determine whether the infection is active or inactive even in instances when conventional clinical and laboratory examinations are available. Under such circumstances, mistakes will occur, but if one exercises good judgment, the affected individual can be protected by taking the necessary precautions.

The lesions (either some or all) that have been described as occurring in simple silicosis may be modified by infection. Other lesions that may be found include cavities (usually thick walled) tuberculous in origin, cavities occurring as a result of necrosis of anemic infarcts, massive lesions, mottling, soft nodulation, various degrees of emphysema and bleb formation, pleural thickening, pleural collections, pneumothoraces and deformations of the domes of the diaphragm. The roentgenologist is rarely able to predict whether the infection is due to the tubercle bacillus or some other organism. One suspects, however, that in the majority of instances, the super-imposed infection is tuberculosis, for Gardner[32] states that the postmortem examinations showed an element of tuberculosis in 60 per cent of the cases.

The changes occurring in the various structures of the respiratory and cardiovascular tracts as demonstrated by the roentgen examination may be summarized as follows:

Trachea.—Its shadow may be in a normal position, especially if a tuberculous process or some other infection is superimposed upon an already established silicotic process. In some instances the trachea is found displaced to one side. At such times, it is my feeling that the silicotic process has occurred either simultaneously with tuberculosis, or the tuberculous lesion was probably established before the silicotic changes became manifest, or the traction of the fibrotic changes produced by a tuberculous and silicotic lesion one side was greater than that of the silicotic process of the opposite side.

Heart and Aorta.—In some instances evidence of cor pulmonale is observed in the advanced silicotic individual. Some clinicians[17] have regarded this condition as a complication of silicosis. The relation between cause and effect is difficult to establish in this instance and cardiologists who have given thought to the question find themselves unable to express an opinion. Many of us who have been interested in silicosis for years, have not been impressed with the incidence of cardiac complications. On the other hand, it is possible that with increased use of the electrocardiograph in the well advanced silicotic, more evidence of slight heart changes may be found. But even if such evidence is found, it is well known to the cardiologist and the general pathologist that in the older age group not exposed to harmful dust, which come to autopsy, cardiac complications are not uncommon. Even in the advanced silicotic with well established emphysema, Gardner[32] states that "hypertrophy of the right side of the heart without arteriosclerosis and even greater involvement of the opposite side is a rarity."

Occasionally, the heart and aorta are displaced to one side or backward by the contracting scar of a tuberculous infection and silicotic process. As in the case of the trachea and in the absence of data to the contrary, such displacement is thought to occur for the same reasons.

Domes of the Diaphragm.—If considerable emphysema is present, the domes of the diaphragm may be depressed and limited in their movements. At times it is necessary to have the patient cough in order to demonstrate, roentgenoscopically, evidence of diaphragmatic excursion.

Individualization of the costal components of the domes of the diaphragm is quite marked when there is considerable basal emphysema.

Another abnormal appearance is multiple peaking of the domes of the diaphragm. It may be impossible to differentiate the peaking caused by pleural adhesions from that due to inelasticity of certain structures of the lung. Both conditions may be present.

Hila.—The shadows of the hila may or may not be within normal limits. The hilum shadow may be enlarged or its shadow may be partly or totally obscured by a larger shadow produced by a lung lesion. The hilum may be displaced upward, laterally or backward by a contracting scar of a silicotic process plus an infection (similar to that causing displacement of the trachea).

Lung Changes.—Mottling is a term that is applied to the small and poorly defined shadows produced by an acute or chronic infection. The roentgen manifestations of mottling and nodulation may be identical and exceedingly difficult or impossible to differentiate. The shadows of mottling often lack a uniformity of distribution and are more likely to change in form in subsequent examinations than are the shadows of nodules. Mottling usually occurs as a result of a bronchogenic spread of a tuberculous lesion or the result of a fungus infestation.

Soft Nodulation.—The shadows of soft nodulation are much larger than those produced by nodulation and mottling, but are smaller than the conglomerate shadow. The description of such a roentgenologic shadow is provided in order to emphasize a perinodular cellular reaction that is observed by the pathologist. These shadows are much more likely to change in character in subsequent examinations than in the shadow produced by nodules, and change less than those due to mottling.

Nodulation.—The shadows of nodulation are similar to those described under "simple silicosis." Soft nodulation and nodulation cannot be demonstrated by a roentgen examination in every case of modified silicosis with infection. This is particularly true in certain industries such as hard coal mining and granite cutting. In cases where there is only roentgen evidence of massive or conglomerate shadows one is more likely to make errors in interpretation.

Massive Shadows.—These shadows vary from 3 to 20 cm. in size. Some are round, some oval and some wedge shaped. These lesions are usually due to extensive areas of fibrosis and are found in the upper third or upper two-thirds of the lung field. Occasionally it is possible with overexposed films, body section roentgenograms or a Potter-Bucky roentgenogram to show some of the details of a massive lesion, such as distorted and obliterated bronchi, cavities and areas of calcification and caseation.

A few years ago, most of these lesions were thought to be due to silicosis with infection. Riddell,[65] Gardner,[32] McCloskey[45] and others question whether this is always true. Gardner[32] thinks that a "third essential factor may be minerals other than free silica."

From a rontgenologic standpoint, I have attempted to determine whether the massive lesion extended to the periphery of the involved lobe of the lung and have used this information as evidence for or against the presence of an active infection. For instance, if a lesion extends to the interlobar fissure or the thoracic wall, such a lesion would be regarded as the seat of an active infection. If the massive lesion were situated in the center of the affected lobe, the roentgen evidence would not necessarily be in favor of an active infection. I realize that such deductions by themselves are of very little value, but in the absence of more convincing clinical and pathological proof attention to this detail may prove to be helpful.

The massive lesions do not tend to displace the midline structures (trachea, hila, heart and aorta) by scar contraction. When displacements of those structures occur, the lesion which produces them is more likely to be either a tuberculous or Friedländer baccillus infection which has preceded or occurred simultaneously with the silicotic process. It should be possible however, for the contracting scar of a tuberculo-silicotic process of one lung to overcome that of an uncomplicated silicotic process on the opposite side.

Occasionally, one sees a lesion which by roentgen methods is diagnosed as a massive lesion, which at autopsy turns out to be a necrotic, anemic infarct or a cavity in which there is no microscopic evidence of infection and which is filled with a syrup-like material. I know of no way to diagnose the true nature of these lesions by the roentgen examination.

We have observed a migration of massive lesions toward the hilum in certain instances. This observation has been very helpful, and explains the prominent shadows adjacent in certain patients in whom there are large masses simulating greatly enlarged hilum lymphnodes.

The rationale for further division into the subgroups tuberculo-silicosis and silicosis with tuberculosis has already been explored, with emphasis placed upon the concept that tuberculo-silicosis is a separate and distinct, chronic disease entity resulting from the prolonged interaction of two disease processes, but differing radically in its behavior from either occurring alone.

The roentgen manifestations of tuberculo-silicosis are protean and yet distinctive. Early in its evolution there are characteristically present linear strands of fibrosis, presumably the result of previous infection, which however may be so fine as to be almost or completely obscured by the accompanying nodulation. In due course, serial roentgenograms reveal evidence first of concentration and later of coalescence of the nodulation about these foci of fibrosis. Newly developed areas of coalescence may extend to the pleural surface of the lungs, but if the disease remains chronic they inevitably contract to form the dense, well delineated "massive shadows" or areas of conglomerate fibrosis so typical of tuberculo-silicosis. These are located most often in the upper lung fields, but may radiate outward from the region of the hilum, occur as rounded masses deep within the lungs, or appear as wedges with their bases directed peripherally. Commonly, these areas of conglomerate fibrosis continue over the years to increase slowly in size, incorporating within themselves more and more of the individual silicotic nodules from other portions of the lungs, until finally one may have as the end-result either single or multiple, unilateral or bilateral massive shadows of conglomerate fibrosis. These may be so extensive as to destroy completely the ordinary identifying characteristics of both the tuberculosis and the silicosis, and they are invariably productive of an advanced degree of surrounding pulmonary emphysema. Since the affected individuals are not toxic, it is this latter which accounts for their obvious and often high degree of disability.

Only rarely is one sufficiently fortunate to see the evolution of the entire process in a given individual. It would seem however, that the pathologic evidence is sufficient, and that adequate numbers of cases have now been followed by means of serial roentgenograms over a period of years, to warrant a presumptive diagnosis of tuberculo-silicosis either upon the visualization of nodulation with concentration, coalescence or conglomeration, or, when bilateral, upon the demonstration by themselves of large areas of conglomerate fibrosis. Limited reservation must of necessity be entertained, however, until the case for or against non-tuberculous infection as the etiologic agent in the production of conglomerate fibrosis is definitely proved.

The behavior of many cases of tuberculo-silicosis would make it appear that the tuberculous component of the process is for a time held in check by the surrounding fibrosis. It remains a potential source of danger, however, and may become active at any time. Such activity manifests itself on the roentgenogram by the development of mottling and, once established, alters, by acceleration of the fatal outcome, the entire course of the disease. It is still true, therefore, that a high percentage (though by no means all) of persons with tuberculo-silicosis ultimately die of tuberculosis.

Silicosis with tuberculosis, as previously indicated, may occur in either one or two forms, the clinical course and roentgen behavior of which are as distinctively different as is their pathology. Early in their development they may present an extremely difficult problem in diagnosis because of one's inability, except upon the basis of preceding serial roentgenograms, to formulate any estimate of the activity of the underlying silicotic process. In both groups the infectious component is first identified by the presence on the roentgenogram of single or multiple, usually apical, ill-defined areas of infiltration or mottling, superimposed upon a background of discrete nodulation. The subsequent behavior, however, is radically different.

In the first group—those in which we have fresh infection, either new or arising from the reactivation of a latent focus, superimposed upon a progressive and still active silicosis—the quartz is incompletely encapsulated by the still immature silicotic fibrosis and retains its ability to exert its specific effect. When the silica concentration is high, tiny foci of necrosis within the nodules occur, providing an ideal medium for the growth of tubercle bacilli; but even when the silica content is not excessive there is in some occult manner produced an environment eminently favorable to their multiplication.[28] Serial roentgenograms exhibit new areas of mottling and local extension of the original foci, about which the silicotic nodules may become extremely abundant.[29] In some, the so-called "perinodular type," there occurs, probably as a result of massive superinfection, a rapid enlargement with loss of definition of each nodule throughout both lungs, due to the development of an intense surrounding zone of collateral inflammatory reaction. Minute foci of caseation are usually present, and cavitation does occur, but by comparison with the general evolution of the process it is a relatively late phenomenon. While, rarely, several years may elapse before toxic symptoms supervene, the general tendency is toward uncontrollable extension to death before there is opportunity for the chronic changes of tuberculo-silicosis to occur.

In the second group are the unusual but existent cases in which silicosis and tuberculosis occur together but act independently. As previously indicated, it is presumed that in these cases the silicosis has healed with the formation of such densely fibrous nodules that the quartz is completely walled off and thus cannot exert its peculiar effect upon the superimposed tuberculous infection. The infection, observed by means of serial roentgenograms, is seen to behave typically as it does in non-silicotic subjects.

(To be concluded in the November issue.)

PAN-PACIFIC SURGICAL ASSOCIATION

The Fifth Congress of the Pan-Pacific Surgical Association will be held in Honolulu, November 10-21, 1951.

The object of the Pan-Pacific Surgical Association is to bring together surgeons from countries bordering on the Pacific Ocean so as to permit the exchange of surgical ideas and methods and to develop a spirit of good fellowship among the various races represented. Although it was planned that meetings would be held every three years, world events have permitted but four conferences since the organization was conceived—the first in 1929 and the last in 1948.

The Fifth Congress provides an opportunity for doctors to combine a delightful vacation in Hawaii with attendance at a scientific meeting, the program of which will be presented by topflight surgeons from the Pacific area countries, as planned by the program committee. Doctors are urged to bring their families with them and are promised luxurious accommodations.

Dr. F. J. Pinkerton, president of the Association, has been officially appointed as travel agent for those coming to the meeting. To be assured of preferred accommodations, travel and hotel reservations should be made through Dr. Pinkerton.

Further information may be obtained by writing the Pan-Pacific Surgical Association office, Suite 7, Young Building, Honolulu, T. H.

THE PREDICTION AND PREVENTION OF CORONARY THROMBOSIS IN THE YOUNGER AGE GROUPS

A Suggestion for Further Study

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A NEIGHBORING doctor dies at thirty-seven from coronary heart disease; a farmer has a coronary infarction at thirty-four; a buttermaker has a coronary heart attack at forty-eight; the editor of a daily newspaper has a fatal attack at fifty-two. A World War veteran suffers an infarction at 53; another farmer, the same at fifty-two—all proven cases. These are by no means isolated instances but are selected at random from our small community within a short period of time.

We are not concerned here with coronary deaths among the aged or prematurely diseased. Those we may leave to their proper study in geriatrics. We are interested in the factors that produce coronary incapacity, causing such a high mortality in people in the fourth, fifth and sixth decades of life.

The purpose of this paper is to suggest a possible method of predicting coronary catastrophes and of possible prophylaxis for those people who are in their most productive years and who should be of most value to society.

The factors causing a coronary complex in the people in these earlier decades differ markedly from those in the aged. In older people, the primary cause of this trouble is an extensive intimal damage in the coronary arterial tree. Secondary factors are sedentary life, improper diet, and probably disease. In the younger years this initial damage is usually only moderate to minor. Several other factors apparently combine in varying importance to cause an infarction. Among these are prolonged nervous tension, the prothrombin time level, diet, and smoking. It is generally conceded that coronary constriction from chronic over-stimulation due to high nervous tension, worry, and overwork plays an important rôle in the foregoing disease entity. Therefore, we shall not add further comment. However, it is different with the other factors mentioned.

In the patients with coronary heart disease whom we have observed, we have been impressed by the low prothrombin time uniformly present.

TABLE I. PROTHROMBIN TIME BEFORE AND AFTER MIXED MEAL

Name	Approx. Age	Before Meal (Seconds)	After Meal (1 Hour) (Seconds)
G.P.	24	60*	55
A.G.	55	75†	60
S.L.	22	90†	75
B.J.	19	70*	65
A.R.	24	70†	60

*Light meal
†Moderate to heavy meal

TABLE II. PROTHROMBIN TIME BEFORE AND AFTER ALL-VEGETABLE MEAL

Name	Approx. Age	Before Meal (Seconds)	After Meal (Seconds)
B.J.	19	55	45
A.G.	55	45	45
S.L.	24	45	40
L.K.	22	50	45
A.R.	24	45	50

TABLE III. PROTHROMBIN TIME BEFORE AND AFTER SMOKING

Name	Approx. Age	Fasting 7 a.m. No Liquids (Seconds)	Fasting ½ Hour After smoking 2 Cigarettes (Seconds)
B.J.	19	60	45
C.T.	40	70	60
J.C.	40	45	35
G.A.	45	65	50
A.R.	24	60	45

Likewise, we have been impressed by the fairly prompt relief of pain in the non-fatal cases when the prothrombin time has been quickly elevated by the use of the anti-coagulants, heparin and dicumarol. We also noted that the pain did not often recur if the prothrombin time level was sustained at a sufficient height. Pain, however, was most likely to recur following a meal. Knowing of no explanation for this, we ran a short series of prothrombin time levels (Smith bedside whole blood method) on normal individuals immediately before eating and again an hour afterwards. The results are shown in Table I.

As a variation, we also ran a series before and after an all-vegetable meal (Table II).

These tests suggest diet as an important factor in precipitating the coronary syndrome.

(Continued on Page 1003)

THE HEART IN FRIEDREICH'S ATAXIA

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FATTY infiltration of the heart was noted by Friedreich in the original description of the disease that still bears his name. This was in 1863. The hearts in which he noted these changes, however, were those of patients who had died of typhoid fever, and there is no way of knowing whether the changes which were noted were due to Freidreich's ataxia or to typhoid fever. The occurrence of cardiac failure as a terminal event in this disease was emphasized by Pitt as early as 1886. From this time on, scant reference[8,9] was made to the cardiac manifestations of Friedreich's ataxia until the report by Loiseau in 1938. He reviewed the literature and found reports of 40 cases in which there were cardiac abnormalities. It was his belief that these cardiac abnormalities were incidental in some cases and specific to the disease in others.

In 1942, Evans and Wright reviewed the literature and reported on the electrocardiographic findings in Friedreich's ataxia. Russell in 1946 gave a detailed and accurate account of the pathologic changes found in the hearts of persons affected with this disease. Since then, scattered reports[5,10,17] have further emphasized the involvement of the heart in Friedreich's ataxia. From the evidence that is available, it is clear that certain cardiac abnormalities are definitely related to Friedreich's ataxia. These do not include such disorders, either acquired or congenital, which exist coincidentally, or the myocarditis secondary to intercurrent viral or bacterial infection which may occur in persons who have Freidreich's ataxia.

The usual clinical manifestations indicative of myocardial involvement are disturbances of rhythm and myocardial insufficiency terminating in congestive heart failure. Complete heart block with Stokes-Adams syndrome has been observed by Evans and Wright in siblings aged eighteen and twenty-two years. Piron believed angina pectoris was present in two brothers he observed.

Examination of the heart may reveal any of the cardiac arrhythmias alone or in various combinations. The heart may or may not be enlarged, and, in those patients who have acquired a kyphoscoliosis, it is displaced. Systolic and diastolic murmurs have been observed infrequently. Hejtmancik, Bradfield and Miller emphasized the diastolic murmurs heard in their two cases and in several cases reported in the literature, but murmurs of any type, especially diastolic, are the exception rather than the rule and are due to cardiac dilatation rather than to valvular disease.

The roentgenologic appearance of the heart is variable. The heart may be of normal contour or it may be globular; it may show varying degrees of left ventricular enlargement or generalized dilatation. In general, cardiac enlargement or dilatation is seen only late in the disease, and in association with far-advanced neurologic disease.

The electrocardiographic abnormalities are of two distinct groups:[11,15] those showing disturbances in impulse initiation and transmission, and those showing alteration of the ventricular complex. The former group includes such arrhythmias as paroxysmal auricular tachycardia, ventricular tachycardia, auricular fibrillation, auricular flutter, varying degrees of auriculoventricular block including first degree, second degree and complete heart block and the Wenckebach phenomenon, right bundle branch block, and various combinations of these disorders. The recorded observations are not sufficient to permit one to make a statistical analysis, but paroxysmal auricular tachycardia and auricular fibrillation are more commonly encountered than any other arrhythmia.

The modifications of the ventricular complex include slurring or low voltage of the QRS complex, deep Q waves, elevation or depression of the ST segment, and sharp, pointed, iso-electric diphasic or inverted T waves in one or more leads. These abnormalities may occur alone or in any combination. Great emphasis has been placed on the occasional finding of a Q_1 T_1 or Q_3 T_3 pattern simulating that found with anterior and posterior myocardial infarction, respectively, and on T_1 or T_3 patterns with "coronary type" T waves. However, when studies with multiple precordial leads were made,[6,17] evidence of a local myocardial lesion was always lacking.

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The study of Evans and Wright of 38 patients with Friedreich's ataxia is significant in that they included patients whose disease from the neurologic standpoint was less far advanced than that of patients reported by other authors. They found definite abnormalities in the electrocardiogram of twelve of these patients, and, in all but one, who had complete heart block, the abnormalities were confined to the QRS complex. The changes were chiefly inversion of the T wave in one or more leads. Occasionally, all the limb leads showed these changes, and, in addition, some abnormalities occurred in widely separated precordial leads. They found that absent tendon reflexes and extensor responses of the plantar reflex, indicating more advanced neurologic disease, were more common in patients with abnormal electrocardiograms. Generally speaking, neurologic signs were more widespread in the patients who had the most conspicuous electrocardiographic changes. Electrocardiographic abnormalities also occurred more frequently in cases in which there was a family history of Friedreich's ataxia, and, finally, there was a marked tendency for members of the same family to have similar electrocardiographic patterns.

The pathologic changes considered by Russell to be characteristic although not pathognomonic consist of patchy loss of muscle fibers, infiltration with round cells and leukocytes, hypertrophy of muscle fibers, and separation of these fibers by an increase in fibrous or collagenous interstitial tissue. Pericarditis, endocarditis or organic valvular deformity was not noted by her. The presence of an interstitial myocarditis had been mentioned in a few reports before[12,13,16,18] and since[5,10] this study by Russell. She expressed the opinion that a focal, piecemeal coagulation necrosis of the muscle fibers takes place and is followed by cellular infiltration. As a result, the fibers are ultimately replaced by collagenous tissue, and the surviving muscle fibers undergo compensatory hypertrophy. This continues over a long period of time, until heart failure develops. At this terminal stage, a severe fatty degeneration is usual.

The theories advanced concerning the etiology and pathogenesis of the myocarditis and arrhythmias include the bulbar, the coronary artery, the infectious and the toxic theories.[11,15]

The bulbar theory, favored by the French,[1,2,8,9,19] is based on the occasional association of injury of the vagal nuclei and evidence of imbalance of the autonomic nervous system, such as paroxysmal cardiac arrhythmias, Cheyne-Stokes respiration, episodes of acute abdominal pain with ileus, and disturbances in temperature control, urine formation and sweating mechanism. However, these clinical findings are not present in the majority of cases, and Russell was unable to find evidence of injury of the vagal nuclei in her cases.

The coronary artery theory is based on the superficial resemblance of the described electrocardiographic changes to the patterns seen in myocardial infarction.[4] However, complete electrocardiographic studies with multiple precordial electrodes show no evidence of the focal type of myocardial injury[6,17] seen in myocardial infarction. Coronary artery disease was not evident at necropsy,[5,10,12,13,16,18,20] and injection of the coronary vessels showed no obstruction in even the finer ramifications of the coronary vessels.[14]

While it is impossible to prove that the myocarditis is not the result of either old or a recent infection so mild as to escape notice, its high incidence in patients with Friedreich's ataxia and its complete absence in unaffected members of the same family suggest that this is not the case. The progressive nature of the myocarditis over a period of several years is more suggestive of the continued action of some unknown agent than it is of the single insult of an acute infection. On the basis of pathologic findings, Russell, Lambrior, and Lannois and Porot concluded that the myocarditis is a result of toxins instead of infection. Available evidence suggests that the most valid theory is that the myocarditis is due to the action of an unknown toxin on heart muscle which may be abnormally susceptible to that toxin because of hereditary influences. It cannot be denied that purely neurogenic influences could be a factor in the production of the arrhythmias[3] but it is not necessary to postulate this mechanism in view of the presence of diffuse morphologic changes in the myocardium.

Contrary to current teachings that patients with Friedreich's ataxia die of intercurrent infection, it would seem that death due to an associated myocarditis is not infrequent. The appearance in these patients of any cardiac abnormality, either clinical, radiographic or electrocardiographic, is probably indicative of a poor prognosis. Certainly, cardiac enlargement, a major arrhythmia or congestive heart failure usually means death within a year or two. The course of the disease moreover does not seem to be influenced by the usual measures which are ordinarily effective in the control of congestive heart failure. Despite this a trial of therapy including digitalization, diuretics and quinidine in selected cases seems worth while.

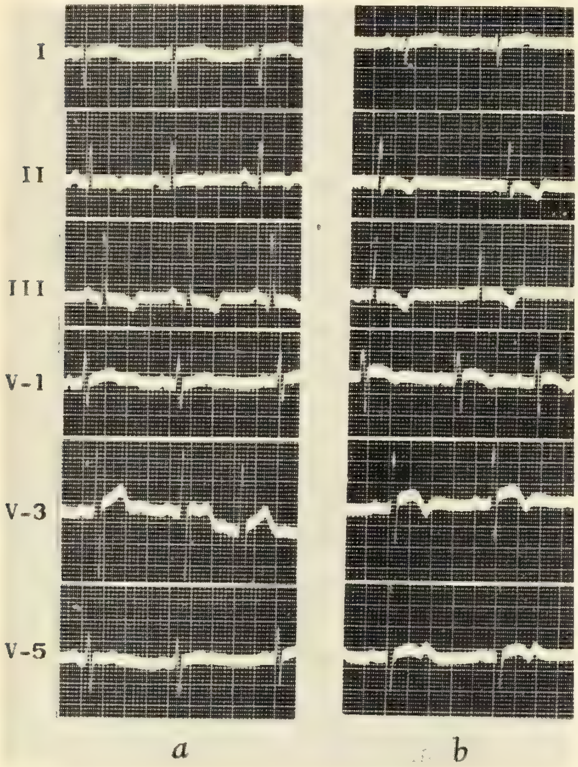

Fig. 1. *a*, Electrocardiogram of patient in case 1; *b*, electrocardiogram of patient in case 2

Report of Cases

Case 1.—An eighteen-year-old white man, who was a high school graduate, was brought to the Mayo Clinic on August 4, 1949, because of difficulty in walking. He had been delivered with the aid of forceps but his neonatal and infancy development had been normal. At the age of six years, it had been noted that he was unable to run, jump or hop and that he had difficulty in walking because of unsteadiness and inco-ordination of the ankles. Soon thereafter, slight inco-ordination of the upper extremities had been noted. These difficulties had progressed gradually without remission during the subsequent twelve years. His general health had been excellent. He had not had any cardiorespiratory symptoms, or indeed any symptoms except those referable to the neurologic disorder.

Physical examination revealed an adequately developed and nourished white male of 18 years with moderate kyphoscoliosis but no deformity of the feet. The cardiorespiratory system was completely normal as were the results of the remainder of the general examination. Neurologic examination revealed a marked ataxia, absence of all tendon reflexes, and bilateral extensor responses of the plantar reflex. It also revealed gross inco-ordination with dysmetria and adiadokocinesis. Romberg's sign was present. The joint sense in the great toe was absent, and there was delayed pain sense in the feet. Nystagmus was absent. The ocular fundi were normal.

The results of routine laboratory tests and roentgenographic examination of the heart, lungs, head and pelvis were normal except for the presence of kyphoscoliosis. The electrocardiogram (Fig. 1*a*) was abnormal, for it showed right axis deviation, occasional auricular extrasystoles, notched QRS_1, slurred QRS_3, inverted T_2 and T_3 and diphasic T in lead V_5. The T wave was positive in leads V_1 and V_3.

A diagnosis of Friedreich's ataxia with myocarditis was made.

Case 2.—The twelve-year-old brother of the patient in Case 1 was also seen at the same time. He had nearly identical but milder symptoms. The onset of his disease was uncertain but it probably had occurred when he was between 6 and 8 years of age. It then had been noticed that he was awkward in running and walking and often stumbled or fell. There had been little or no progression of his symptoms since they first had been noted. As with the brother, there was complete absence of cardiorespiratory and other symptoms.

The results of general physical examination were normal except for the presence of slight lumbar scoliosis. Neurologic examination revealed less marked ataxia and inco-ordination, but the same reflex changes as were present in the older brother, namely, absent tendon reflexes and bilateral extensor plantar reflexes. Sensation, however, was normal. There were slight nystagmoid motions but definite nystagmus was not present.

The results of routine laboratory tests and roentgenographic examination of the heart, lungs, head and spinal column were normal except for the presence of slight lumbar scoliosis. The electrocardiogram (Fig. 1*b*) was even more abnormal than that of his brother. It showed right axis deviation, slurred QRS_1, inverted P_3, inverted T_2 and T_3, inverted T and elevation of the ST segment in leads V_1 and V_3 and diphasic T in lead V_5.

The diagnosis in this case also was Friedreich's ataxis with myocarditis.

The parents and two remaining siblings, aged thirteen and sixteen years, were then examined. None had symptoms of neurologic or cardiorespiratory disease. There was no evidence of Friedreich's ataxia, pes cavus or cardiac disease. Their electrocardiograms were all normal.

Comment

Our observations on these two brothers are partly in agreement with those of Evans and Wright in that the two neurologic signs most frequently seen in patients with electrocardiographic abnormalities, namely, an absence of tendon reflexes and an extensor response of the plantar reflex, were present in both cases.* They represent another example of the observation that afflicted members of one family tend to have similar electrocardiographic patterns. We have no explanation for the finding of more marked electrocardiographic changes in the younger of the two patients in whom neurologic damage was less marked, but emphasize it because it is contrary to previous experience. The extension of electrocardiographic abnormalities across the entire precordium in this latter case gives further support to the belief that most, if not all, of the cardiac abnormalities associated with Friedreich's ataxia are due to a diffuse myocarditis. The cause of this myocarditis is unknown but it is probably of toxic cause.

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*Since this paper was completed, the report of G. W. Manning (Cardiac Manifestations in Friedreich's Ataxia. Am. Heart J., 39:799-816 [June] 1950) has been published. It emphasizes the clinical and electrocardiographic aspects of the cardiac arrhythmias and heart failure noted in four of six patients with Friedreich's ataxia. Myocarditis similar to that described by Russell was found at necropsy in one case.

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CORONARY THROMBOSIS IN THE YOUNGER AGE GROUPS

(Continued from Page 999)

This further observation was made. If the patient was allowed to smoke cigarettes, he frequently was threatened with a syndromal attack. On suspicion, these few tests were run on normal people (Table III).

From this meager evidence, it may be that cigarette-smoking acts not only to constrict the arterial lumen but, what may be more dangerous, to lower the prothrombin time level.

It is known, of course, that a high percentage of people subjected to these same conditions, tension, dietary indiscretions, and smoking, survive into an older age group. There must, then, be some common factor that determines the precipitation of coronary attacks at different ages. We believe this factor to be the difference in prothrombin time level. We believe that this difference in level is a hereditary factor, and that it plays an important rôle in coronary attacks. Therefore, we believe that coronary attacks are predictable and preventable.

Assuming, then, that this reasoning is correct, should it not be reasonable to assume that by routine testing, individuals prone to coronary disease could be detected and prophylactically treated with dicumarol to elevate the prothrombin time to a satisfactory and safe level just as the diabetic individual can be detected and treated?

We realize, of course, that a prolonged research would be required to establish the proof of this reasoning. Even a few hundred selected people tested and followed through the years should establish the veracity of this contention. We believe, however, that such research in prothrombin time levels would be justified in an attempt to prevent the colossal cost in heart deaths exacted by our modern high-geared society.

CHRONIC LEUKEMIC INFILTRATION OF THE GASTRIC WALL SIMULATING PEPTIC ULCER

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THE FIRST description of gastric involvement in a case of apparent leukemia was given by Briquet in 1838 and published in Cruveilhier's Atlas of Anatomy. In this case, the mucosa of the stomach and bowel was thrown into folds resembling cerebral convolutions. Since then, as reported by Pearson, Stasney and Pizzolato,[11] in all descriptions of autopsies on lymphatic leukemia patients, various authors have stressed the diffuse involvement of the mucosa and submucosa of the stomach, usually without involvement of the deeper layers. These authors reported two similar cases.

Various pathologists since Cohnheim have recognized anatomical changes in various organs, in leukemia, without changes in the blood. Cohnheim[2] suggested the name "pseudoleukemia." Warthin[15] designated the condition a generalized or localized "aleukemic lymphocytoma." Ewing[3] observed: "The gastrointestinal tract is a seat of a remarkable form of primary lymphoid hyperplasia which lacks the destructive character of lymphosarcoma and fails to give lymphocytosis of the blood. The process may be chiefly limited to a portion of, or involve the whole of, the gastro-intestinal tract, or it may be associated with widespread lesions of most of the other lymphoid structures." Ewing[3] designated this as "aleukemic lymphomatosis." Ikeda[5] in 1931 described a case of gastric tumor and infiltration thought to be carcinoma, on whom a gastro-enterostomy was done. After five years the patient died of almost generalized lymphatic leukemia and heart failure. The entire gastro-intestinal tract was involved. In this case the infiltration extended out into the muscularis and serosa. The mucosa in the upper part of the stomach showed the thickened rugae described by Briquet. Ikeda[5] found, in 12,396 autopsies at the University of Minnesota, seventy-seven cases of leukemia of which fifty-one were of the lymphatic type and twenty-six of the myelogenous type. Of the former, only two cases showed local nodular elevation or thickening of the gastric wall, and two showed ulcers. In the myelogenous type, only one showed a local thickening of the mucosa. Grossly these lesions could not be differentiated from those of Hodgkin's disease or of lymphosarcoma. Ikeda[5] recommended abandoning use of the term "pseudoleukemia gastro-intestinalis" since it included all of the above types of lymphoblastomata. According to Mead,[8] the pathologic character of lymphatic leukemia of the gastro-intestinal tract varies from slight swelling of the mucous membrane and lymph follicles to extensive hyperplasia of the lymphoid tissue of the entire gastro-intestinal tract, with associated generalized lympadenopathy. The process may be limited to one organ or to the whole gastro-intestinal tract. Polypoid formations anywhere in this tract are common. The stomach mucosa often exhibits enlarged convolated rugae. Ulceration of the mucosa is infrequent. Mead[8] states that the muscularis is uniformly uninvolved. Gastro-intestinal Hodgkins Disease is uncommon but ulceration is relatively common in this disease as it is in lymphosarcoma. In the leukemias, as recorded by Paul and Hendricks,[10] one often finds small areas of thickening and infiltration of the mucosa, and in such thickened areas the mucosa may become denuded resulting in shallow ulceration and hemorrhage.

Forkner[4] states that pseudoleukemia (aleukemia) seems more likely to give gastro-intestinal involvement than do cases where the blood picture is positive for leukemia. He also emphasized the difficulty of differentiating the gross alterations in the gastro-intestinal tract caused by leukemia, aleukemia, lympho-sarcoma and Hodgkin's Disease. In contrast to the infrequentcy of leukemia of the gastro-intestinal tract, O'Donohue and Jacobs[9] collected a series of 100 cases of

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Published with approval of Chief Medical Director. The statements and conclusions published by the authors are the result of their own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

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lymphosarcoma of the stomach reported by various authors from 1937 through 1946. Poer[12], Macchi[7] and Koucky, Beck and Atlas[6] have given separate descriptions of acute perforations of lymphosarcomatous ulcers of the stomach and duodenum which presented clinically as peptic ulcers. This is extremely rare in leukemia.

The intensity of symptoms in lymphatic leukemia of the gastro-intestinal tract seems to have no constant relationship to the extent of the pathologic changes. The most extensive lesions may be symptomless. Achlorhydria is an occasional finding. Areas of hemorrhage or small ulcers due to secondary infection may occur in some cases. There may be profuse hematemesis, bloody diarrhea, loss of appetite, weight loss and weakness. An abdominal mass may be present. These symptoms cannot be differentiated from those of other lymphoblastomata or of carcinoma. The x-ray is of little value in diagnosing any lymphoblastoma; most cases have been called carcinoma. Ikeda[5] states that the demonstration of deep heavy rugal impressions on the x-ray, together with a postive blood picture or biopsy, may be helpful in diagnosis of gastric leukemia but he emphasized that there is no pathognomonic roentgen picture of the stomach in the gastric manifestation of lymphatic leukemia.

The use of the gastroscope in the diagnosis of lymphoblastoma of the stomach was introduced by Schindler[14] in 1922. However, he stated in his first edition in 1937 that no case of leukemia or aleukemia of the stomach had ever been observed gastroscopically. In his 1950 edition he states that gastroscopy often yields important results in leukemia. Hypertrophic gastritis may be seen in myeloid leukemia and atrophic gastritis is more apt to be seen in lymphatic leukemia. Leukemic infiltrations are visible at times. Schindler[14] finds that the differentiation between Hodgkin's disease, lymphosarcoma, leukemia, some types of gastritis, carcinoma or syphilis of the stomach cannot be made from the gastroscopic picture alone. The diagnosis can be made only if biopsy of a lymph node reveals the typical picture and a diffuse stiff infiltration is seen. Leukemic infiltration and Hodgkin's disease of the stomach will be suspected only if other signs of these conditions are present elsewhere. In difficult cases, Schindler[14] recommends biopsy at laparotomy without the intent of resection. The biopsy should be taken from the area which was suspicious at gastroscopy. The abdomen then is closed and paraffin microscopic studies of the biopsied tissue are run. In lymphoblastoma, irradiation then is used. If syphilis is found, treatment is started. Carcinoma is promptly resected.

Renshaw and Spencer,[13] in 1947, found no reports available of the gastroscopic appearance of leukemic, pseudoleukemic or Hodgkin's infiltrations of the stomach, but judging from autopsy descriptions of such lesions, these authors were of the opinion that the lesions would be indistinguishable from carcinoma or lymphosarcoma. They described the gastroscopic appearance of eight cases of gastric lymphosarcoma, in six of which a diagnosis of infiltrating or ulcerative carcinoma was made. In the other two cases, cervical lymph nodes pointed to the proper diagnosis. They state that there is no characteristic gastroscopic picture of lymphoblastoma.

The gastroscopic examination of patients with malignant lymphomata at the University of Iowa has been well described by Paul and Hendricks.[10] All patients at that institution who are found to have any type of lymphoma are routinely gastroscoped. From 1941-1947, 53 patients with malignant lymphoma were found by such examination to show characteristic involvement of the stomach while during this same period only fifteen cases were found at autopsy to have gastric lymphomatous lesions. Of these fifty-three patients, twenty-two had chronic lymphatic leukemia, ten had myelogenous leukemia, one had monocytic leukemia, and twenty had Hodgkin's disease. There was no correlation in these cases between the type and duration of symptoms, degrees of free HCl or the extent of involvement. The ages ranged from nineteen to seventy-five years. The authors state that the gastroscopic picture was no indication of the type of hematopoietic neoplasm present. The most frequent gastroscopic finding was a granular mucosa suggestive of "goose pimples," seen usually on the anterior wall near the angulus (Depth II). The next most common site was the posterior wall of the antrum. These granular elevations appear as highlights on a dry mucosa and at times are 1 mm. in diameter and large enough to project above the surface. The same appearance was found in some of these patients in the mucosa of the rectum and sigmoid. Here they differ from the mucosal findings in chronic ulcerative colitis in being fewer in number and of larger size. The color of the gastric mucosa in these cases varied with the degree of anemia present and the mucosa often presented gelatinous areas of edema with small hemorrhages. The second type of lesion seen through the gastroscope in these lymphoma cases was a nodular mass, not over 1 cm. in diameter, surrounded by abnormal appearing mucosa, often hemorrhagic. These usually were near the cardia, more often on the posterior wall. One such nodule was later examined at necropsy and found to be an infiltration of lymphatic leukemia. The third, and least common type of lesion seen in these cases was an ulceration. Two such ulcers were found, both in Hodgkin's disease, and both were on the greater curvature. The authors conclude that hematopoietic neoplasms involve the stomach with greater frequency than the medical literature would indicate. Since the mucosa and submucosa are involved, gastroscopic evaluation is made possible and is very helpful.

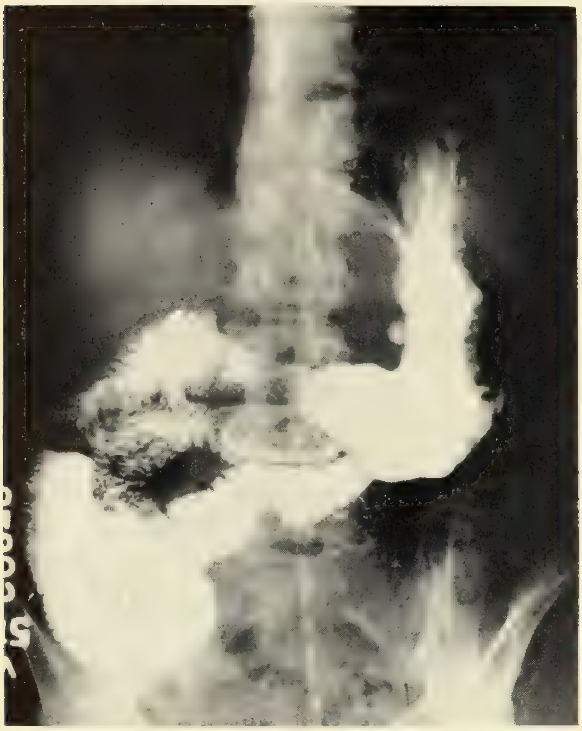

Fig. 1. Large penetrating gastric ulcer on the lesser curvature just above the incisura. It appeared benign both to the roentgenologist and to the gastroscopist.

Very recently, Benedict[1] has reported on the use of the flexible operating gastroscope in the diagnosis of lesions of the stomach. He reported such biopsies to be of definite value in the diagnosis of lymphoma, carcinoma and gastritis. Sixty-three biopsies had been done without accident or complications. For obvious reasons, the method has not been used or recommended for differentiation of benign from malignant gastric ulcers. Since lymphoma is usually a diffuse process, Benedict[1] thinks that a negative biopsy probably excludes this diagnosis with reasonable certainty. (In view of the work just described, by Paul and Hendricks,[10] such an assumption might be open to question.) If doubt exists and lymphoma seems likely clinically, gastroscopy and biopsy should be repeated, taking the latter from a new area of the gastric mucosa.

As to treatment of the gastric lesions of hematopoietic neoplasm, Paul and Hendricks[10] report that irradiation and nitrogen mustard had little, if any, effect on the gastric involvement. In some cases the lesions progressed after these agents were used. Watkins,[16] however, has found considerable benefit from the use of nitrogen mustard in adequate dosage. Schindler[14] recommends surgical biopsy and if this is positive for lymphoma, irradiation is then given. Mead[8] stated that the best results in treating lymphatic leukemia of the stomach were obtained by combined surgery and x-ray therapy.

Case Report

A white, retired postal employe, aged fifty-nine, was admitted to the Minneapolis Veterans Hospital on October 7, 1949. The patient was complaining of generalized malaise, sore throat of two weeks' duration, rhinitis and sinusitis of three weeks' duration and inability to maintain himself on his ulcer regime at home.

Past history revealed that his first admission to the hospital was in 1931 at which time a diagnosis of chronic duodenal ulcer was made; the diagnosis was confirmed by roentgenologic study. In 1940, he was readmitted because of persistent vomiting, epigastric pain and a weight loss of 25 pounds. A duodenal ulcer was again demonstrated and the symptoms promptly subsided with conservative therapy. Precordial pain and shortness of breath were listed as additional complaints.

A severe attack of precordial pain, with radiation of pain into the left arm and hand, associated dyspnea and profuse diaphoresis necessitated emergency hospitalization in 1945. Therapy was exercised in keeping with a diagnosis of acute coronary occlusion. However, serial electrocardiograms failed to reveal infarction, or evidence for coronary insufficiency. Numerous electrocardiographic studies done since that date have continued to demonstrate normal tracings.

Precordial pain of ten days' duration, partially relieved by sublingual nitroglycerine, was the inciting cause of his readmission in June, 1947. Laboratory studies at this time revealed a persistently elevated white blood cell count ranging between 17,000 and 32,000. Biopsy of a small node in the right axilla revealed chronic lymphatic leukemia; this was confirmed by bone marrow biopsy. X-ray films of the upper gastro-intestinal tract were again made, which revealed a filling defect in the midportion of the body of the stomach. This was thought to be of questionable significance; duodenal deformity was again noted. From June, 1947, until January, 1949, follow-up studies at three-month intervals were carried out. At the time of each reexamination, precordial pain and epigastric distress continued to be the main complaint. During this interval the spleen and liver became palpable and the lymph nodes became more prominent. Repeated white blood cell counts were in the range between 60,000 to 80,000 with 80 to 90 per cent mature lymphocytes; occasional immature lymphocytes were observed.

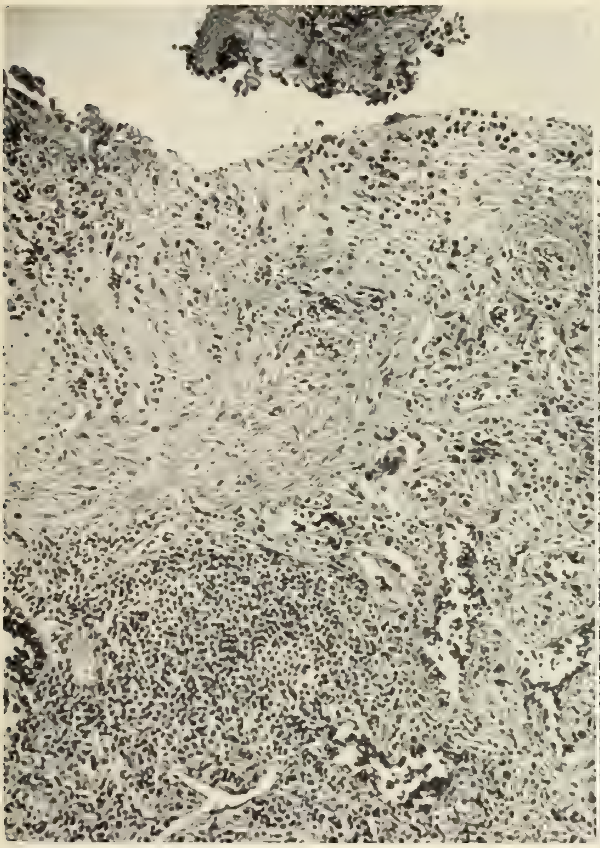

Fig. 2. Microscopic section through the base of the gastric ulcer. Necrotic debris, proliferating fibroblasts, and an underlying diffuse lymphocytic infiltration are noted.

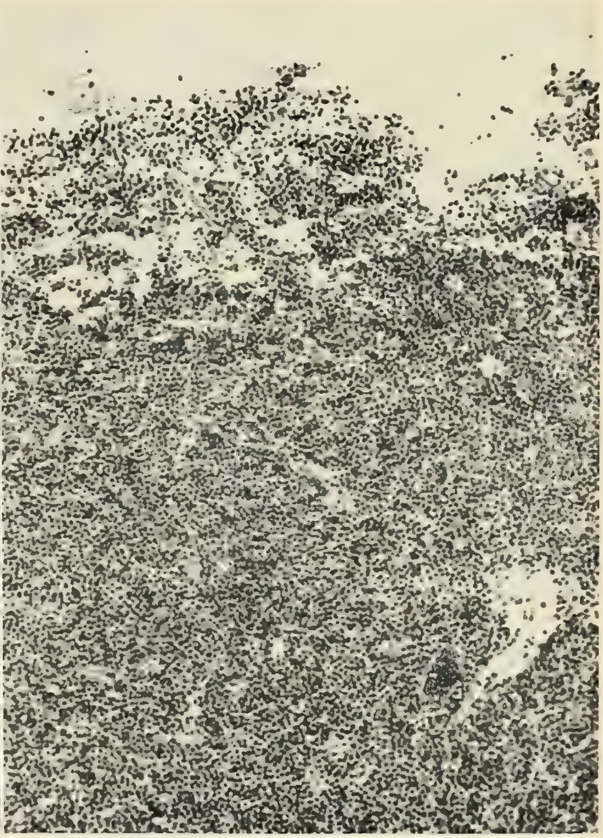

Fig. 3. One of the large collections of lymphocytes found in the submucosa. Others were found in the muscular layer and in the serosa.

During the latter part of January, 1949, the patient was again admitted as an emergency because of nausea, vomiting, 10 pound weight loss, epigastric distress, and precordial pain. An upper gastro-intestinal study was done and a gastric ulcer was observed on the lesser curvature and posterior wall (Fig. 1). A crater in the duodenal bulb was also noted. Gastroscopy was carried out and a large penetrating gastric ulcer on the lesser curvature about one inch above the incisura was observed. The crater was approximately 1.75 cm. in diameter. The membrane lining the crater had a smooth greyish white color. The rim of the crater was moderately edematous and only slight injection surrounded the rim of edema. Gastroscopy and x-ray studies were carried out at two-week intervals. Examinations done seven weeks after the first examination revealed complete healing of the previously reported ulcer.

Despite visits at two months' intervals, the patient sought emergency readmission in August, 1949, because of intractable epigastric distress, nausea, vomiting and a 15-pound weight loss, which had occurred in a period of four days. Fluid balance was restored and ulcer management was continued. Nightly aspirations were carried out and residual retention ranged from 50 c.c. to 300 c.c. The patient was taught to use an Ewald tube. It was decided that with lymphatic leukemia, and coronary insufficiency, surgery should be deferred until it was actually imperative to relieve obstruction. Gastro-intestinal studies at this time demonstrated a minimal residual of the gastric ulcer on the lesser curvature and a duodenal deformity.

At the time of admission on October 7, 1949, physical examination revealed a thin, undernourished male who appeared acutely ill. The blood pressure was 142/76, pulse 116, respirations 22, temperature 101.4° Fahrenheit. The mucous membrane of the nose and throat were congested and a purulent post-nasal drip was observed. Signs of right upper lobe consolidation were present. A soft systolic murmur was heard at the apex and the heart was enlarged to the left. The liver and spleen were palpable on deep inspiration. Tenderness and muscle guarding were present in the midepigastric region. Shotty nodes were found in the cervical chains bilaterally and both axillary and inguinal regions.

The hemoglobin was 12.1 grams, white blood cell count 83,000 with 15 per cent neutrophils and 85 per cent mature lymphocytes, sedimentation rate 98 mm. per hour, serum proteins 6.7 grams with 4.4 grams of albumen and 2.3 grams of globulin. Prothrombin time was 100 per cent of normal. Bromsulfalein: 2 per cent retention in 45 minutes. Serum bilirubin: 1 minute, 0.2 mg. per cent; total, 0.5 mg. per cent. Gastric analysis: total acid 44°, free acid 36°. Stools were negative for ova, parasites and occult blood. Urinalysis showed a trace of albumen and an occasional white blood cell. Sputum cultures revealed the usual mouth organisms. X-ray studies of the chest revealed a diffuse infiltration in the right upper lobe. Electrocardiogram again showed a normal tracing.

The patient was placed on penicillin and the fever promptly subsided; however, pleural effusion developed and required repeated aspirations. Cultures of the aspirated fluid were repeated negative. Following subsidence of the inflammatory process an upper gastrointestinal study was carried out and an ulcer crater was visualized on the lesser curvature. Gastroscopic study at this time demonstrated a one cm. crater, penetrating in nature, 2 cm. above the incisura slightly to the posterior wall side on the lesser curvature. The ulcer crater was covered by a smooth glistening gray membrane. No heaping up of the ulcer margin was seen; a slight rim of edema surrounded the crater.

In spite of intensive therapy the crater continued to enlarge and the patient was transferred to the surgical service. Two days prior to scheduled surgery, the patient became faint, weak and passed numerous tarry stools. The hemoglobin level dropped to 7.9 grams. Three thousand c.c. of whole blood were required to restore his hemoglobin level to 14 grams. Subtotal gastrectomy was carried out and the postoperative course was uneventful.

Examination of the resected portion of the stomach revealed a depressed area on the lesser curvature which appeared to be a healed ulcer. Immediately adjacent to this area, an elliptical ulcer with slightly rolled edges 1.2 by 2.5 cm. was present. The base of the ulcer was necrotic but was not indurated. In the pyloric portion of the stomach, on the anterior wall and midway between the greater and lesser curvature, an old healed ulcer was represented by puckering at this spot.

Microscopic studies revealed the base of the ulcer to be composed of necrotic debris and some slight proliferating fibroblastic tissue (Fig. 2). The ulcer was relatively superficial, extending only into the inner muscular coat. The mucosa became thinner and just faded off at the edge of the ulcer. Underlying the ulcer was a diffuse lymphocytic infiltration which extended through the musculature and became particularly heavy in the serosa. Large collections of lymphocytes were found in the submucosa, musculature and serosa of the stomach wall near the ulcerated area, (Fig. 3) and similar collections were found in all portions of the stomach sectioned, whether near or far from the area of ulceration. These masses of lymphocytes were found diffusely throughout the stomach wall and were arranged in such discrete units that they did not give the appearance of an inflammatory process, but rather of leukemic infiltration of the stomach wall. Abdominal nodes removed at the time of surgery showed the normal architecture to be completely wiped out by a homogeneous sheet of lymphocytes consistent with a diagnosis of lymphatic leukemia.

Conclusions

1. The literature is reported describing the gastric manifestations of lymphatic leukemia.

2. Ulceration of the gastric mucosa is extremely rare in lymphatic leukemia of the stomach. When present it is almost always of a superficial type, amounting only to small erosions. Deeper ulcers, resembling peptic ulcers in a nonleukemic stomach, have not been described in the literature.

3. A case is reported where recurrent ulceration, resembling peptic ulceration, both by x-ray and gastroscopy, was found on the lesser curvature of the stomach in a patient with proved systemic lymphatic leukemia. Gastric resection was finally performed. The pathological examination of the resected specimen revealed typical chronic lymphatic leukemia infiltration of all layers of the gastric wall.

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CILIARY ACTION AND ATELECTASIS

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THE physiology and physics of the movement of oxygen and other gases in the lungs seem to be well understood. The partial tensions of the gases in alveolar air have been measured, and the observed physiologic steps are consistent with the known laws of physics. Removal of entrapped air under pathologic conditions in the lungs and elsewhere is not so completely understood. For instance, it seems to be generally believed that the air from a lung portion which becomes atelectatic is removed by absorption alone. It is held that a plug of mucus, of such great viscosity that the cilia are unable to handle it, corks a bronchus and that the air behind it is completely absorbed.[5,9,10,11] Sometimes the opinion is ventured (seemingly without any direct evidence) that ciliary action is subnormal or has ceased entirely.

In many respects, this view appears to be essentially correct. There seems to be no doubt that air can be removed from an obstructed lung by absorption alone. This has been demonstrated experimentally[1,2,3] and seemingly happens in the presence of tumors and some foreign bodies. There are, however, discrepancies which make one suspect that other factors are involved. Pathologists and endoscopists sometimes find masses of very viscid mucus, but, more often, it is soft. The negative pressure associated with atelectasis may be considerable—34 mm. of mercury has been measured. It is sufficiently strong to move the mediastinum to one side or the other and to practically immobilize the chest wall. One would suppose that the soft mucus would slide down into the area of negative pressure, but this it does not do. The absorption of air experimentally requires sixteen hours,[1,2,3] and postoperative atelectasis develops much more rapidly than that; surgeons have told me that it develops on the table. Thick, viscid casts of mucus, which are incorporated in the bronchial wall, do form in asthma and are demonstrable at necropsy. The result, however, is not atelectasis but rather the opposite, emphysema. That cilia cannot handle viscid mucus appears to be in error also. Tests which I made in the open frontal sinus of an anesthetized dog indicated that viscid mucus can be removed more readily than very thin mucus. In these experiments, it was lifted en masse from the bottom of the sinus and carried to and through the ostium, occluding the latter completely during its passage.

It has been taught that the bronchial tree increases its cross-sectional area with each subsequent branching and that a composite bronchial tree would look like an inverted funnel. If this concept were accurate it might be possible that a viscid plug of mucus, carried upward in the bronchial tree, would become lodged in the narrowed stream bed. My son and I made some measurements, however, of the bronchial tree which indicated that the concept of the inverted funnel applied to the bronchial tree is not correct, at least in bronchi larger than 1.5 mm.

The question arises whether, according to the known laws of physics, it would be possible for the air to be completely absorbed from an obstructed lobe subjected to a negative pressure of the magnitude found in atelectasis.

It may be of value to review the steps by which air is absorbed from different portions of the body in the light of known physical laws. We naturally think of the lungs first. The tidal respiratory flow while at rest is about 500 c.c.; 150 c.c. of each breath remain in the dead space of the bronchial tree; the other 350 c.c. flow into a residual volume of 2,500 c.c. Here a rather complex situation is set up due to the differences in the partial gas tensions in alveolar air and atmospheric air. Diffusion is a necessary step in bringing the fresh oxygen to the alveolar wall where exchange of gases with the blood takes place. Oxygen molecules move at the rate of about 200 meters per second at room temperature; however, they bump into other molecules so frequently that the diffusion rate is very much smaller.

A physicist friend has given me the following formula for the diffusion of air at standard conditions of temperature and pressure: $r = 3.5 \times$ the square root of t ("r" represents the average mean distance in centimeters traveled by the molecules as though they emerge from a point and move outward in all directions without obstruc-

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Presented at the annual meeting of the Minnesota State Medical Association, Duluth, Minnesota, June 12, 1950.

tion and "t" is the time in seconds). Working this out, r = about 35 mm. per second. The alveoli are approximately 0.2 mm. in diameter or 0.1 mm. in radius. This means that, during the one second which the air remains in the alveolus during inspiration, an oxygen molecule starting from the center of an alveolus could make the trip to the wall about 350 times. The picture then of the gases from the inflowing air (oxygen, carbon dioxide, nitrogen and water vapor) is that of the contained molecules flying rapidly in all directions and making contact with the walls of the alveolus from 1 to 400 times a second. The rate of absorption into the blood would depend upon, first, the nature of the interposed membranes; second, the comparative pressures of the gases in the blood and in the alveolus and, third, the relative solubility of the gases in the blood plasma.

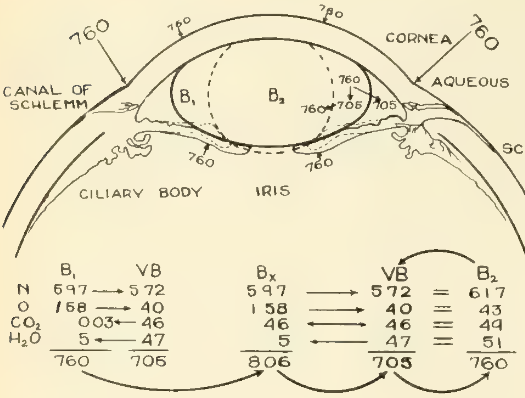

Fig. 1. Diagram representing an air bubble injected into the anterior chamber of the eye. The figures in the column under B_1 are the partial pressures of the various gases contained in the injected air. Column VB gives the values in venous blood. It is assumed, for the purposes of this study, that the values are the same in the aqueous humor of the eye, although they probably differ somewhat. Since CO_2 diffuses more rapidly than the other gases, this gas would pass from the aqueous into the bubble faster than O_2 would dissolve. Therefore, at first, the pressure would increase, as indicated in Bx, if the volume should remain unchanged. The exchange of the other gases would soon take place as indicated between Bx and VB. Equilibrium would be established at 705 mm. of pressure—if the volume should remain constant. The volume, however, does not remain constant since the yielding walls of the eye are subject to an atmospheric pressure of 760 mm. The volume would shrink until the pressure was equalized. Then the gas tensions would all be too high, as in B_2, and movement of molecules would continue into the aqueous, again causing a further fall in pressure. Equilibrium could not be attained and all of the air would be absorbed.

Let us take a simpler example, for the moment, than that of the alveolus. In cataract surgery, we sometimes inject air into the anterior chamber at the end of operation in order to prevent adhesions between the iris and the incision. From four to six days are required for such a bubble in the anterior chamber to be absorbed. Let us follow the steps as we feel they must be, according to physical law (Fig. 1).

The partial gas pressures in the atmosphere are given about as follows: oxygen 158 mm. of mercury, carbon dioxide 0.03 mm., nitrogen 597 mm. and water vapor 5 mm. (water vapor, of course, varies widely) making a total of 760 mm. of pressure. The partial pressures of the aqueous are between those of the arterial and the venous blood; oxygen is given at 40 to 45 mm. and carbon dioxide about 45 mm. The aqueous is produced in the ciliary body through a combination of dialysis, filtration and secretion. Oxygen, nitrogen and carbon dioxide molecules are roughly about the same size as water and would, therefore, probably pass through the capillary walls, the stroma and the endothelium of the ciliary body about as rapidly as water, and, therefore, the concentrations would be much the same as in arterial blood. (Again, a reservation must be made, remembering that filtration may be interfered with by the processes of secretion). The aqueous serves the metabolic needs of the lens, portions of the cornea and iris and probably other structures as well. In this metabolism, it undoubtedly loses oxygen and picks up carbon dioxide, as in the metabolism of tissues everywhere. It leaves the eye by several different routes, including the canal of Schlemm, through which the aqueous is in direct contact with venous blood with no intervening membranous barrier.

Let us assume, for our purposes, that the gas tensions present in the aqueous are the same as those in the venous blood. Those given for the venous blood are: oxygen 40 mm. of mercury, carbon dioxide 46 mm., nitrogen 572 mm. and water 47 mm., making a total of 705 mm., or 55 mm. less than that of the atmosphere. The following steps would occur during absorption of the air bubble in the anterior chamber: The 0.03 mm. of carbon dioxide would be rapidly increased to 46 mm., because the movement of carbon dioxide is some thirty-five times as fast as that of oxygen. Meanwhile, the 158 mm. of oxygen would be reduced more slowly to 40 mm. The bubble would first increase in size or pressure because of the rapid movement of the carbon dioxide; the nitrogen moves much more slowly than either oxygen or carbon dioxide and, for purposes of simplification, can be assumed to stand practically still. The carbon dioxide, having reached equilibrium before the oxygen, would find itself at a higher tension in the bubble as the latter moved out. If the bubble remained constant in size, the carbon dioxide would move back into the aqueous and the oxygen would continue to move into the aqueous until equilibrium would be established with a net loss in pressure of 72 mm. However, since the eye is subjected to atmospheric pressure, disregarding for our purposes the intraocular pressure, the air bubble would not remain the same in size but would shrink until the pressure again equalled 760 mm. As soon as this happened, then the tension of the carbon dioxide, oxygen and the nitrogen would be greater in the bubble than in the aqueous, so all three would again move from the bubble into the aqueous—the carbon dioxide very rapidly, oxygen much more slowly and the nitrogen still more slowly. This would once more be followed by shrinkage of volume and the whole process would be repeated. Equilibrium would never be established, and eventually all of the gases in the bubble would be dissolved in the aqueous.

Taking another example from our field of work, negative pressure sometimes develops within the sinuses. Assuming that the ostium should become completely blocked while the sinus was still full of air, through what physical steps would the gases of the air pass and what would be the eventual pressures? Conditions in the sinuses are far different from those in the alveolus of the lung or those in the anterior chamber of the eye. In the eye, the air is in direct contact with the aqueous, there being no interposing membranes. In the alveolar wall, there is at least one interposing membrane—the capillary wall. In the sinus, there is the capillary wall, a connective tissue stroma and a cuboidal type of epithelium, which is at least two cells deep. It would seem that these interposing structures would increase the time of the passage of gas molecules from the interior of the cavity into the blood stream. Moreover, the blood supply to the sinuses is normally very meager, and still another factor is that the sinus wall carries both oxygenated arterial blood and venous blood, while all of the blood entering the lungs is venous blood, from the standpoint of gas content.

Despite these handicaps, carbon dioxide would eventually find its way from the capillaries into the sinus cavity, oxygen would move less rapidly from the cavity into the venous blood, and, still more slowly, nitrogen would find its way into the blood stream. The total pressure within the sinus would rise at first because of the inflow of carbon dioxide molecules, but, eventually it would begin to fall, as was the case in the eye. However, the sinus walls being rigid, there would be no decrease in volume and, therefore, the pressure, after the initial rise, would fall progressively until equilibrium would be established. If there were only venous blood present in the capillaries, the pressure theoretically would fall to 705 mm. of mercury, the same as the gas pressure of the venous blood. However, the gas pressure of the arterial blood is 757 mm., therefore, the gas molecules would escape from the arterial blood into the cavity as they were removed from the cavity into the venous blood. Theoretically, equilibrium should be established at a pressure somewhere between 705 and 757 mm., probably in the neighborhood of 725 mm. The volume would remain the same as when closure of the ostium began (excluding, of course, such things as edema and secretion).

As a further illustration, the middle ear furnishes an example of conditions between those in the eye and in the sinus. Herbert,[6] of Upsala, on introducing rubber balloons into the nasopharynx and inflating them in such a way as to close the eustachian tubes, has found that in about thirty minutes there is a marked retraction of the ear drum, which he assigns to the reduced pressure following oxygen absorption. Here are conditions midway between those in the eye, where there is an external positive pressure and yielding soft walls, and those of the sinus, where the walls are rigid and there can be no reduction in volume. That portion of the lateral wall of the middle ear which is comprised of the tympanic membrane is more or less yielding and the volume of the space is reduced somewhat. Therefore, the air in the middle ear would be more completely absorbed than that in the sinus. Still it is not possible for all of the air* to be absorbed; equilibrium would eventually be established at a pressure somewhere between the gas pressures of the arterial and the venous blood. One would infer the time required, as in the case of the sinus, would be long compared with that of the lung.

In the thorax, too, the tissues about an obstructed lobe of the lung are not free to yield as completely as those about the bubble in the eye (Fig. 2). The wall of the thorax is more or less rigid and a negative pressure develops within it.

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*Again, excluding such things as secretion, edema and other changes in the lining epithelium.

However, absorption can go on until the negative pressure equals the difference between the gas pressures in the alveolus and the gas pressures in the venous blood. This difference approximates 55 mm. of mercury. Theoretically then, there could be established a negative pressure of 55 mm. of mercury before equilibrium would be established and the absorption of gases would cease. The greatest negative pressure which has been measured in collapse of the lung is about 34 mm. of mercury,[4] so, theoretically, all of the air from an obstructed lobe of the lung could be completely absorbed, provided 55 mm. of negative pressure is not exceeded. However, a certain amount of time is required for absorption of gases, even from the lung. Coryloss and Birnbaum[1,2,3] report experiments in which individual gases were injected into the obstructed lung of a dog (i.e., a portion of the lung had been tied off). Absorption was accomplished for carbon dioxide in four minutes, oxygen fifteen minutes, nitrogen sixteen hours and air sixteen hours. As these experiments indicate, nitrogen and air require about the same amount of time for absorption.

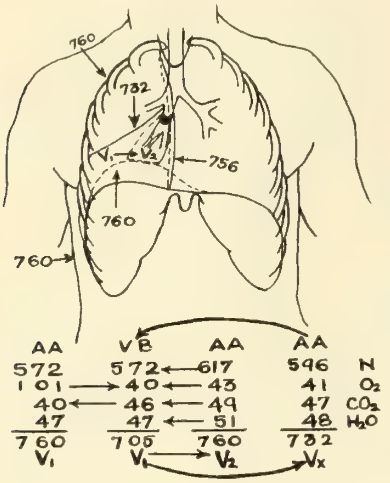

Fig. 2. Absorption of air from an obstructed lobe of the lung and the effect of negative pressure. AA represents the gas tensions in alveolar air and VB the gas tensions in venous blood. When a lobe becomes obstructed exchange of O_2 and CO_2 would take place as indicated between AA and VB. If the volume (V_1) remained unchanged, equilibrium would be established at 705 mm. It would not remain constant, however. It would yield to the pressure of 760 mm. (atmospheric pressure) in the surrounding tissues and shrink to V_2. All of the values would then be too high and gas molecules would pass from AA_1 to VB. If a negative pressure of 732 mm. should develop within the thorax, as a result of shrinkage of the lobe (such pressures have been measured), then there would be further shrinkage in volume until the pressure within the lobe was also 732 (Vx). The gas tension would still be somewhat above venous blood and would move from AA_2 to VB. Equilibrium would not be possible unless the negative pressure within the thorax should drop to 705 mm. (venous blood) or below. If the intrathoracic pressure should remain above 705 mm., theoretically absorption could be complete.

Attempts were made to compare the absorption rate from the lung with that from the anterior chamber of the eye. The volume of the anterior chamber of the eye has been estimated to be about 1/20,000 of that of the lungs. The volume of blood flowing through the lungs at rest is estimated at about 4,600 c.c. per minute; through 1/20,000 part of the lung, this would be 230 cubic millimeters. The rate of circulation of aqueous through the eye is unknown; measurements have been variable (from 2 to 40 cu. mm./minute) but even the maximum would be only a small fraction of the 230 cu. mm. in the lungs. There are several other factors which make comparison difficult. Although there is no interposing membrane between the bubble and the aqueous in the eye, the bubble is all in one mass and exposes the minimum of surface for absorption, whereas an equal volume of air in the lungs is divided into hundreds of little spheres, each of which is surrounded by blood flow, presenting an area of about 500 square centimeters. In the aqueous, there are no blood cells to aid in the quick pick-up of the gas molecules, as there are in the blood surrounding the alveoli. It is difficult also to compare the time of absorption in the sinuses and ear with that in the lungs; in the former the air masses exhibit a small area for absorption compared with the latter. Moreover, the blood flow is only a small fraction of that in the lungs and the interposing membranes are very much denser and thicker. If sixteen hours are required to absorb a volume of air from an obstructed lobe of a lung, probably several days would be required to absorb an equal volume from an obstructed sinus.

To summarize, air injected into the anterior chamber of the eye absorbs completely, but the time is comparatively long; it takes four to five days to absorb 0.1 c.c. It requires several days for air to be completely absorbed from the pleural cavity or the subcutaneous tissue and several weeks from the peritoneal cavity. The only experiments bearing directly on the time factor in the case of the lungs, which I have seen reported, are those by Coryloss and Birnbaum, where sixteen hours were required to absorb air from the normal lung of a dog. These facts concerning the time of absorption would seem to indicate that some factor in addition to absorption is acting in the removal of air in postoperative atelectasis, which develops very promptly after operation.

In all of the articles in the literature on postoperative atelectasis, the matter of ciliary action is almost entirely overlooked. It seems to me that ciliary action cannot be ignored in the respiratory tract any more than heart action can be disregarded in the circulation or peristalsis in studying the physiology of the gastrointestinal tract. There is no evidence that ciliary action in postoperative atelectasis is subnormal.

Some years ago I performed some experiments on the tracheas of freshly killed hens for the purpose of determining a possible relationship between ciliary action and postoperative atelectasis. If an occluding mass of mucus is introduced into the lower end of such a trachea, it will pass through to the upper end by ciliary action in the course of a few minutes. In these experiments the lower end was connected to a water manometer immediately after introducing the mucus; as the mucus advanced toward the laryngeal end, by ciliary action, a negative pressure developed rapidly, reaching a maximum in less than twenty minutes. This experiment was done on nineteen tracheas with the same result in all. The recorded negative pressures varied from 5 to 40 mm. of water.

In order to be certain that this phenomenon was not due to absorption of oxygen in the fresh tissue, another series of experiments was performed connecting the laryngeal or upper end of the trachea to the manometer. In each of these instances a positive pressure developed of about the same magnitude, namely up to 40 mm. of water. Having in mind the probability that many masses of mucus in the longer tubes of a patient suffering from atelectasis might produce a cumulative effect, resulting in a higher pressure, another series of experiments was performed.[8] Three, and sometimes four, tracheas were arranged in tandem and each was connected to a water manometer at its upper end. Connections which could be opened and closed at will joined the tracheas so that the pressure resulting in each could be individually measured, and, when desired, all of them could be connected as a single tube and the cumulative pressures recorded. These experiments demonstrated clearly that the effect is cumulative and pressures as high as 150 mm. were obtained in this way. This is comparable to the pressures measured in postoperative atelectasis.

Several series of experiments were done on the frontal sinuses of dogs. In the first of these, two needles were forced into the frontal sinus of an anesthetized dog, one was connected to a water manometer and through the other a quantity of mucus was injected. A negative pressure began to develop after a few minutes, reaching a maximum in about twenty minutes; some of these pressures were as high as 60 mm. of water. In order to rule out the factor of absorption, a second series was done in which the dog was bled to death through the femoral artery in the middle of the experiment, and then decapitated. Neither procedure caused any significant variation in the pressure. Still other experiments were done on the decapitated heads of freshly killed dogs. These recorded the same phenomenon of a rapidly forming negative pressure.

These experiments on the trachea of the hen and the sinus of the dog demonstrate another mechanism for the removal of air and the development of negative pressure. It is essentially a piston-cylinder action motivated by ciliary power, the masses of mucus acting as the pistons. If this factor is acting in the development of postoperative atelectasis, we would have the explanation for the failure of the soft mucus to slide into the area of negative pressure and for the seeming inaction of the cilia. When the cilia have pushed the masses of mucus up a bronchus as far as they are able, against atmospheric pressure, the mass of mucus becomes stalled. This explains the fact that very soft mucus can seemingly act like a cork; the cilia are holding it in position and attempting to push it further. The negative pressures of 200 to 400 mm. of water, which have actually been measured in postoperative atelectasis, might readily be explained on the basis of a series of mucus pistons in tandem being pushed upward in the bronchial tree by ciliary action. This negative pressure could, theoretically, be produced entirely by ciliary action independent of absorption. The negative pressure is probably maintained by ciliary power only.† One can say that the effective power of the cilia equals the atmospheric pressure minus the pressure in the affected lobe and is the magnitude of the negative pressure. This pumping action of the ciliary mechanism is similar in principle to that of a mercury vacuum pump.

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†There is another mechanism possible which should be mentioned. If the occluding mucous piston occurs in a membranous bronchus, it is quite possible that the bronchus may collapse behind the piston, due to the negative pressure. If this were to happen, the apposing walls of the bronchus might adhere together because of the cohesiveness of the normal mucous film. In this case, the atelectasis might conceivably be maintained without the presence of an abnormally great quantity of mucus.

It was found in the experiments on the trachea of the hen that if the procedure were carried on for an hour or more the cilia continued to whittle away at the periphery of the mucus piston, gradually carrying it upward and depositing it at the end of the trachea. Theoretically, the cilia could remove the piston maintaining the negative pressure in atelectasis also, if given sufficient time, provided no more mucus formed. However, if production of excessive mucus should continue, then the atelectasis might be maintained.

We have spoken of absorption of air from the sinuses as though it were the usual thing for the ostium to be obstructed while the cavity is still full of air. It is more likely that in conditions resulting in vacuum headache the air was initially displaced more or less completely by the first secretion which formed. It seems likely that the heavy mucus, which forms large viscid masses toward the end of an attack of sinusitis, might produce a negative pressure in a manner similar to that in the experimental dogs. This could very readily be the explanation for the clinical condition known as vacuum headache.

This last suggests another possibility for the rapid removal of air from the lobe of a lung in a surgical patient during operation. It is quite possible that the air is largely displaced by a secretion and that a negative pressure soon follows due to ciliary action.

The negative pressure which occurs in the middle ear might very likely be on the basis of ciliary action moving pistons of mucus down the eustachian tube. Repeated attempts to demonstrate it experimentally have failed to date. Just how the air is removed from the middle ear in blockage of the eustachian tube remains an open question.

Summary

The absorption of air from the anterior chamber of the eye, from the sinuses, from the ear and from obstructed portions of the lung follows the principles of well-known laws of physics such as those governing diffusion, solubility, partial pressures and molecular combination. It seems that air can be completely absorbed from almost any space or tissue in the body, such as those just mentioned, as well as the peritoneum, pleural cavity and subcutaneous tissues, provided sufficient time is allowed and provided the space containing the air can collapse. If the space containing the air cannot collapse or can do so only partially, a negative pressure develops, depending upon the gas pressures present in the absorbing fluid.

In postoperative atelectasis, there are at least three mechanisms by which the air could be removed, namely, (1) absorption, (2) displacement by secretion, and (3) the pumping action of cilia and moving masses of mucus. The negative pressure in most cases of postoperative atelectasis is, in all probability, maintained solely by ciliary action. It is probable that the mechanism involved in the pumping action of the cilia and moving masses of mucus is the one which causes vacuum headache and possibly also negative pressure in the middle ear following otitis media.

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TRANSFUSION PROBLEMS

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DURING the past twenty years there has been a remarkable increase in the use of blood transfusions. In one hospital with which I am connected the increase has been exactly twentyfold. There are many reasons for this striking increase. The changes in surgical methods and the improvements in anesthesia together with the development of the antibiotics have made surgical procedures commonplace which a decade ago were rarely done. Generally this type of surgery necessitates the use of a large amount of blood. The introduction of the ACD solution as a preservative permits the storage of blood for periods of about three weeks, and contributes greatly to making blood more available and hence used more often. Probably the greatest factor in promoting the increased use of blood is the safety of the modern transfusion. The discovery of the Rh factor initiated a tremendous amount of research which has for the most part eliminated the frequent and severe transfusion reactions which were so common prior to 1940.

The safety of a transfusion and its frequent use paradoxically creates a problem. The use of blood is so ordinary and so commonplace that there is today a tendency to look upon a transfusion as a benign procedure much like the administration of saline or glucose. A transfusion always carries with it a definite danger. Disrespect for the lethal possibilities involved can and still does lead to tragic results. Let me cite one example.

In one hospital a unit of blood was ready for an eight o'clock operation. However, it was not used, and it was left in the room after the operation was over. The second operation in this room required a transfusion, and when the anesthetist decided to start the blood she picked up the bottle standing on the side table, and over 400 c.c. was administered before she read the label and realized that that blood was intended for the prior surgical patient. We must continuously teach our hospital personnel the tragic results which may come from carelessness and negligence in the use of blood.

Another problem evolves around the question, "Does the patient actually require a transfusion?" Physicians sometimes forget the normal range of hemoglobin. In this section of the country the lower limit of average hemoglobin is about 12 grams. This means that 70 per cent on a 17 gram standard is a low normal. It is very probable that hemoglobin is adjusted by the body to the particular activity and physiology of the individual. A hemoglobin of 13 grams in one individual may be just as normal as 16 grams in another. If blood is transfused into such an individual having a physiologically normal hemoglobin of 13 grams, that blood is an excess and cannot be utilized and will be eliminated by hemolysis.

There is a tendency today to use a transfusion as an accessory to many operative procedures. Individuals undergoing operations of modern magnitude, for example a cholecystectomy, are not necessarily candidates for a transfusion. Prior to the operations, these same individuals, being in good nutrition and having no anemia, could have been used as blood donors and as such would have lost 500 c.c. of blood. Surely in such individuals an operation with a blood loss of 200 to 400 c.c. does not necessitate a transfusion except perhaps for psychological reasons. It would seem that a transfusion is too dangerous to be used as a dramatic accent in the care of a patient or a patient's relatives.

On the other hand, there are occasions where there has been significant or massive loss of blood, and transfusion is the life-saving therapy. When such occasions arise, the treatment with blood must be prompt and must be generous. Administration of one unit of blood over a period of twenty to forty minutes to an invidual bleeding critically is not adequate treatment. Two, three, or four units of blood should be given simultaneously using each arm and leg as portals, or preferably, the blood should be forced in by pressure. When a patient is losing blood rapidly it is probably impossible to replace the blood too fast. Five hundred c.c. of blood can be given by pressure in four to seven minutes. There should be no hesitation in giving two, three or more units in suc-

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Read at the annual meeting of the Minnesota State Medical Association, Duluth, Minnesota, June 13, 1950.

cession as long as there is evidence that the patient is bleeding.

Every hospital should have available in surgery, in obstetrics, and in its supply room the equipment for giving blood under pressure, and everyone should know how to use it. Most of the commercial companies handling transfusion equipment now have such pressure sets for sale, and their people are happy to give instructions as to its use and the precautions to take.

In hospitals without a large blood bank, the selection of the kind of blood to use during an acute emergency presents a difficult problem. For example, should time be taken to do Rh typing? Today, because of the reliable typing sera now available Rh grouping can be done in a few seconds. It would be a rare situation wherein blood must be given without knowledge of the Rh grouping of the recipient. If the patient is Rh positive, the problem is simple because blood of either Rh type can be given. The question of sensitization to the Hr antigen in Rh-negative blood can be disregarded because of its great rarity. If the patient is Rh-negative and a sufficient amount of Rh-negative blood is not immediately available, it is necessary to pause for a few moments and evaluate the situation. If the patient is a male, the question must be asked, "Has he been transfused before?" If so, he may have been sensitized by this prior transfusion, in which case these questions must be asked: "Is the emergency great enough to warrant taking any chance on a prior sensitization? Can the emergency be controlled by plasma until Rh-negative blood is available?" The physician must balance the urgency against this risk. If the patient is an Rh-negative female, the problem is much more difficult. Because of the very adverse effect on future pregnancies, no female should ever be deliberately sensitized by a transfusion of Rh-positive blood except as a life-saving measure. Any Rh-negative woman who has had children may be sensitized, and if her obstetrical history suggests that she may have had erythroblastotic babies she most likely is sensitized. Transfusion of Rh-positive blood to these sensitized Rh-negative women results in extremely severe reactions with a very high mortality. In all such cases of possible sensitization, plasma must be used until Rh-negative blood can be obtained. Every community should make arrangements so that the Rh-negative individuals in its population are known and have been organized so that they may act as donors for each other in emergencies.

The use of Group O blood as a universal blood for transfusion does carry with it a certain small chance of reaction. An instance of this type was studied recently by Dr. Matson and will be reported in MINNESOTA MEDICINE. However, the incidence of this type of reaction is very small, and a patient's life should never be endangered by hesitating to use Group O blood for other groups and to do so, if necessary, without cross matching. The addition of the Witebsky substance to such Group O blood takes only a few seconds and still further lessens the danger. The material is purified Group A and Group B blood substance. When this is added to Group O blood, the anti-A and anti-B agglutinins are neutralized, making the blood a truly universal blood.

As a general pathologist, I have had contact with transfusion work for many years and I know that we never had such transfusion safety as we now have. Most of this safety is due to the study and research of men who are devoting their full time to transfusion problems. I am sure that the practitioner owes such men considerable gratitude and support.

THE MANAGEMENT OF STATUS ASTHMATICUS

(Continued from Page 987)

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History of Medicine In Minnesota

MEDICINE AND ITS PRACTITIONERS IN OLMSTED COUNTY PRIOR TO 1900

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(Continued from September issue)

Seth (Septimus) Watkins Gould (1847-1891), a native of Canada, was a resident of Olmsted County the greater part of the time from about 1873 into 1891. There is some evidence that he was in Oronoco, this county, in 1873, and that during 1874 he was in Zumbrota, Goodhue County. He probably came to Rochester in 1875, for on April 21, 1876, the Rochester *Record and Union* stated that Dr. Gould, who for some time had been associated with Dr. W. W. Mayo, had gone to reside and to practice medicine in Mazeppa, Goodhue County. In July, 1880, well liked, considered to be a capable practitioner, he returned from Mazeppa to Rochester, again to be an associate of Dr. Mayo. The agreement between Dr. Mayo and Dr. Gould was dated July 24, 1880, and was witnessed by William J. Mayo and W. Logan Brackenridge. It was stated in the newspapers at that time that Dr. Gould was a graduate of Rush Medical College, class of 1866, and that in addition to the duties of an associate physician he would have charge of all patients requiring the services of an electrician, that he had made a successful study of electrical therapeutics. The first official register of physicians of Minnesota (1883-1890), however, listed Dr. Gould as a graduate of the Bennett Eclectic Medical College of Chicago in 1870; he was licensed in Minnesota on December 31, 1883, when he received state certificate No. 665 (E).

During his second period of practice in Rochester, it is said, Dr. Gould was married to Miss Oaks of that place. From May, 1881, until late December, 1881, when he removed to Pleasant Grove, he was secretary of the Rochester Board of Health, during the presidency of Dr. E. W. Cross. In Pleasant Grove Dr. Gould bought the property of a Mrs. Hill, established a drug store and entered his final practice of medicine. His professional contemporary in the village was Dr. Alonzo W. Hill, who practiced there from 1878 to 1889.

On January 1, 1886, Dr. Gould, thirty-nine years of age, was committed by his wife to the Second Minnesota Hospital for Insane at Rochester. The origin of his illness was ascribed locally to sunstroke suffered while working over a gun during his military service (reputedly as a lieutenant during the Civil War), and it was said that a second soldier, working with him, also succumbed to sunstroke and became insane. Dr. Gould died in the state hospital on October 27, 1891, from "general paresis with asphyxia," and was buried in Oakwood Cemetery, Rochester.

Christopher Graham (1856-   ), venerable physician emeritus of Rochester, a practitioner of medicine from 1894 to his retirement in 1919, arrived in Olmsted County early in July, 1856, when he was three months old.

The sixth of the thirteen children of Joseph Graham and Jane Twentyman Graham, he was born on April 3, 1856, near Truxton, Cortland County, New York. His parents were natives of Cumberland County, England; Joseph Graham was born near the village of Dalston, Jane Twentyman in Great Orton Parish. The Twentyman family came to America in 1840; Mr. Graham came in 1844 when he was twenty-two years old. Mr. and Mrs. Graham were married in Cortland County in 1847 and lived there until May, 1856, when with their six small children and a few worldly goods in a horse-drawn wagon they started for Minnesota. Although heavy rains forced them to take a boat from Buffalo to Milwaukee, they finished their journey by wagon into Kalmar Township, Olmsted County, and there founded a new home about five miles northwest of Rochester. After forty years at Grahamholm, which they had first called "The Willows," they removed to Rochester to spend their last years. Their thirteen children were: Mary Elizabeth, William Beck, Thomas Chambers, John, Manfred Davis, Christopher, Joseph, Dinah Frances, Margaret Anne, Frank Charles, Edith Maria, Arthur Frederick and Jennie. In 1949 there were living, Joseph Graham, on a farm near Stewartville, and Dr. Christopher Graham, of Rochester.

The story of the Graham family should be chronicled as a saga and the group commemorated for intelligence, fortitude, integrity and good citizenship. Under the severest hardships of pioneer days parents and children surmounted lack of means and opportunity. Joseph Graham was a kind father, although a strict disciplinarian in the home, and an indefatigable worker who had unusual capacity for taking pains. Jane Twentyman Graham was a woman of rare courage, deep religious faith, warm sympathy and a natural talent for soothing the sick and making them comfortable. Always giving, never asking, as since has been said of her physician son, she nursed without material recompense all in her vicinity who needed her. Perhaps she gave greatest aid in obstetrical cases, in which her knowledge and skill were equal to those of most physicians of the day. In later years her children estimated that she aided in the birth of 243 babies, without medical counsel and without loss of a mother or a child. Two of her daughters, Dinah Frances and Edith Maria (Mrs. Charles H. Mayo) inherited her natural ability in nursing; Dinah Frances, the elder, in her early teens helped her mother in cases of all types. Both of these daughters received accredited training and followed the profession of nursing before marriage. Edith Graham was the first trained nurse in Rochester.

It will require an abler pen and a more suitable vehicle than the present to portray rightly the life of Christopher Graham. Under conditions so difficult that today they are hard to picture, he obtained his education by patient, persistent effort. Until he was twenty years old he worked on the home farm, as did his brothers and sisters, and received only the teaching available in the local district school during terms of a few weeks at most. Books were few, money was too scarce to buy them, and sense of responsibility forbade borrowing them. In the winter of his twenty-first year "Kit" Graham achieved four continuous months of study at the private school of Mr. Loofborough, in Rochester; he then had covered approximately the work of the present day junior high school. The next winter he taught district school and in the following year studied a full term of nine months at Niles Academy (The Rochester English and Classical School, staffed by Mr. and Mrs. Sanford Niles and their assistants). The next four years were filled with farm work, rural school teaching and, in spring and autumn, further study at Niles Academy. Always Christopher walked from home to school and back.

In the autumn of 1882, aged twenty-six years, Christopher Graham entered the University of Minnesota as a subfreshman and special student. On arrival, doubtful of his eligibility, he told President William Watts Folwell of his meager schooling and explained that he probably could attend the university only a year or so, that he loved domestic animals and the land and wanted to be a farmer.

President Folwell assured him that his lack of formal preparation was not a drawback, that his age was an advantage. For the ensuing five years he was a student at the university, dropping out frequently to repair his finances. Thereafter, for two school years, from 1887 into 1889, he taught chemistry and natural philosophy at Shattuck School at Faribault. In the autumn of 1889 he entered the class of veterinary medicine at the University of Pennsylvania and in June, 1892, took his degree; it was then that he received the Lippincott Prize, awarded to the member of the graduating class who had attained the highest general average in the course of three years. After one year as veterinarian to the Experiment Station and Agricultural College of the University of Minnesota, he realized that clinical medicine was his true calling, and he returned to the University of Pennsylvania as a medical student. When in June, 1894, aged thirty-eight years, he received his degree of doctor of medicine, he returnd at once to Rochester, to accept the invitation of Drs. William J. Mayo and Charles H. Mayo to join them in practice. These brothers he has credited with giving him encouragement and opportunity.

The following twenty-five years saw his fulfillment as a physician. He was the first to serve as intern in St. Mary's Hospital (opened in 1889) and he became and remained an attending physician. Throughout the years he studied and observed, visiting hospitals and clinics at home and abroad and taking special courses of study, particularly with regard to the blood. In his earlier period he was an obstetrician of ability; today mature practitioners of this specialty who studied as young physicians with Dr. Graham, express their debt to his wisdom and conservatism. Gradually he fixed his chief interest on diseases of the digestive tract and their differential diagnosis and here he achieved his most brilliant success. The papers which he contributed to the medical literature on chronic appendicitis, gastric ulcer and gastric cancer and gallbladder disease retain their value. His paper on disease of the gallbladder, written before the perfection of certain laboratory tests and the initiation of roentgen examination of the gallbladder, is a classic in diagnosis by case history, signs and symptoms. Dr. W. J. Mayo once said of Dr. Graham: "I have never met his equal as an internist and a diagnostician." Senior associates and junior, alike, recall Dr. Graham as at all times modest and unassuming, distinguished for his insight and acumen, sympathy, patience and delightful humor.

Dr. Graham early became a member of the Olmsted County Medical Society (once its president), the Southern Minnesota Medical Association, the Minnesota State Medical Society and the American Medical Association, and was active in them throughout his professional career. Interested in public health and sanitation, he was a member of the state board of health for several years during the administrations of Governor John A. Johnson (1904-1909), and retired from the work only because of professional duties in Rochester. He was appointed associate in medicine with the Drs. Mayo in 1904 and head of the Division of Medicine of the Mayo Clinic in 1914. He was Professor of Medicine on the Mayo Foundation for Medical Education and Research of the University of Minnesota from 1915 until his retirement in 1919. He is a member of the Alumni Association of the Mayo Foundation.

Christopher Graham's love of farming, horticulture and animal husbandry increased with the years, leading him to distinguished achievement and honor in these fields. He was a leader in introducing Orpington chickens into the country, and at one time had flocks of these fowls, black, white, and buff, second to none in the world. He started the development of what was probably the first purebred Holstein-Friesian herd in this part of the state and he became internationally known as a breeder and importer of blooded livestock. For more years than any other person he was a member of the board of trustees of the Holstein-Friesian Association. His scientific contributions have been recorded in the archives of the Minnesota Livestock Breeders Association and elsewhere.

Dr. Graham is a Mason and an enthusiastic member of the Rotary Club. The latter organization, he has said, has helped him more than has any other influence to understand men and to obtain a broad comprehension of social and civic needs and responsibilities. His support of the Olmsted County Fair Association and his generous gifts of real estate to that association and to the city of Rochester and St. Mary's Hospital evidence his constructive interest in public welfare. He is a supporting member of the Calvary Episcopal Church.

On January 4, 1899, Christopher Graham was married to Elizabeth Blanche Brackenridge, member of a family long notable in Olmsted County and the state. Walter Lowry Brackenridge, of Scotch ancestry, a lawyer, came in 1856 from Pennsylvania to Rochester, Minnesota, with his wife, Margaret McC. Logan Brackenridge. The three children of the family were William Logan, Madge and Elizabeth Blanche; the son, who died in 1905, was a lawyer in Rochester; Madge was married to George D. Parmalee.

For many years Dr. and Mrs. Graham have made their home in East Rochester, in the beautiful brick residence, surrounded by parklike grounds, that was built by the Honorable Walter L. Brackenridge in the early seventies. They have two children, Malcolm Brackenridge Graham and Elizabeth Blanche (Mrs. George M.) Lowry, both of Rochester, two grandchildren, Margaret Brackenridge (Mrs. Calvin T.) Slatterly and Louise Lowry, and two great-grandchildren.

The esteem in which Dr. Graham is held by his fellow citizens cannot be measured, but it is indicated by an inscribed scroll that was presented to him on his eighty-fifth birthday on April 3, 1941:

> Diplomate in both veterinary and regular medicine, authority on diseases of the upper part of the gastro-intestinal tract, practical farmer, patron of animal husbandry, public-minded citizen, unannounced doer of good to scores of his fellowmen, on this the occasion of his eighty-fifth birthday, his many friends and townsmen present this scroll in token of affection and esteem.

Charles Topliff Granger (1870-1939) practiced medicine in Rochester, Olmsted County, from 1892 into 1939, with the exception of two years in McGregor, Minnesota, from 1928 to 1930. For thirty-five years he had his office over the Quale Drug store on Broadway.

Born on July 30, 1870, at the farm home of his parents in Cascade Township, Olmsted County, near Rochester, Charles T. Granger was the second son of Abner Granger and Louise Topliff Granger. Abner Granger was the son of Julius Granger and grandson of Seba Granger, who was descended from a Granger who settled in New England long before the American Revolution; Seba Granger removed from Massachusetts to Otsego County, New York, and there established the family home. Abner Granger was married to Louise Topliff, of Otsego County, on February 25, 1867, and in that year came with his wife to Olmsted County, Minnesota, where for many years he was a highly respected citizen and a substantial farmer and pioneer dairyman.

Charles T. Granger received his early education in rural schools and in the schools of Rochester. He spent a year in the medical department of the University of Iowa and two years at the Hahnemann Medical College, of Chicago, from which he was graduated on March 23, 1892. Returning immediately to Rochester, he entered into partnership with Dr. Wilson A. Allen, in offices in the Leland Block, on Broadway. At first he devoted himself to treatment of diseases of the eye and ear, but proceeded soon to the general practice for which he became well known. In the autumn of 1892 Dr. Allen and Dr. Granger established the Riverside Hospital, in East Rochester; this institution functioned three years.

From the summer of 1896 Dr. Granger practiced alone for eight years, extending his practice from the city into the county and adjoining counties, until it became, by 1904, according to the *Rochester Post and Record* of June 24, that year, "probably the largest individual practice of any physician outside the Mayos." In the earlier years, before automobiles, it sometimes required four consecutive days of driving to make his rounds.

In 1904 Dr. Granger took into partnership one of his former students, Dr. George T. Joyce, newly graduated in medicine from the University of Illinois, and like himself a native of Olmsted County. After this association ended, Dr. Granger for many years maintained a corps of assistant physicians, replacing them as, after a year or two of work with him, they went on to independent practice.

In his earliest years as a physician Dr. Granger was active in the Minnesota State Homeopathic Institute. After 1900 he was a member of the Olmsted County Medical Society (its secretary, 1905; its president, 1906-1907); the Southern Minnesota Medical Association, the Minnesota State Medical Association, and the American Medical Association. In 1935 he published in the *St. Paul Dispatch* a series of articles, *The Saga of a Country Doctor,* which attracted much attention. Although he refused the nomination for county coroner on the Republican ticket in 1896, he served from 1894 to 1899 as county physician for the city of Rochester and the townships of Rochester, Marion, Haverhill and Cascade. He was active in the Methodist Church (he later became a convert to the Catholic faith, it is said), and in civic affairs, serving as alderman, alderman-at-large, mayor, president of the city council two terms, and as member of the city library board.

On March 8, 1898, Charles T. Granger was married to Katherine Cornelie, of Minneapolis. Mrs. Granger, a woman of outstanding personality and ability, was a trained nurse who for a year or more had been the supervisor of nursing at the Riverside Hospital. Dr. and Mrs. Granger first lived in East Rochester, later in the southwestern part of the city, in a home known for its gracious hospitality. In 1928 they removed to McGregor, Minnesota, where for two years they conducted their own clinic and hospital. Mrs. Granger died in McGregor on March 7, 1929, survived by her husband and by four children, Louise, Virginia, Charles and Gordon. Dr. Granger was married on May 2, 1930, to Bertha P. Irish, widow of Dr. H. R. Irish, of Forest City, Iowa; Bertha Irish Granger, a former resident of Rochester, was a graduate of the nurses training school, since discontinued, of the Rochester State Hospital.

In 1930 Dr. Granger resumed the practice of medicine in Rochester, limited by his gradually failing health. He died in Rochester on October 4, 1939, at the home of his niece, Ophelia Granger (Mrs. E. D.) Ridgeway, survived by his wife and his four children and by his sister, Kate E. Granger, of Rochester. His brother, the Honorable George W. Granger, a distinguished attorney of this city, had died a few months previously. In an obituary in the *Minneapolis Tribune* of October 6, 1939, Dr. Granger was credited with having diagnosed the first case each of epidemic infantile paralysis, Spanish influenza and pellagra in Minnesota, and the first case of trichinosis in Rochester.

In 1945 there were living of Dr. Granger's immediate family: Mrs. Granger, in Rochester; Louise Granger (Mrs. Edward B.) Lynch, in Minneapolis; Virginia Granger (Mrs. Raymond T.) Busch, in Gaylord; Charles T. Granger, a newspaperman, of Milwaukee, Wisconsin; and Major Gordon A. Granger, United States Army Medical Corps, in England.

Dr. Charles T. Granger is remembered for his keenness, cleverness and social charm, and for certain of his hobbies; namely, his blooded saddle horses and racers of the earlier years, among them Gipsy Wilkes and Kentucky Prince, and his hunting lodge, Granger's Camp, in the beautiful Genoa Woods of Olmsted County, where he was host to his friends among businessmen and physicians of Rochester.

Gertrude Booker Granger (1871-1928) was born Gertrude Booker on March 13, 1871, at Quincy, Olmsted County, Minnesota, the daughter of James A. Booker, a native of Brunswick, Maine, and Jane Short Booker, a native of Waddington, New York. She had four brothers, O. W., Frank Daniel, F. A., and W. Allison Booker. After the death of Mr. and Mrs. Booker, in 1887 and 1889, respectively, Frank Daniel Booker went to Brunswick, Maine, to live with an uncle. He received his education in the East and in 1901, a qualified dentist, graduate of the dental department of the University of Pennsylvania, he settled in Rochester, Minnesota, where for many years he was a leading dentist. The other brothers became farmers of Olmsted County.

Gertrude Booker received her early education in the country schools of Olmsted County and at the Winona High School. In October, 1892, she entered the newly established Asbury Methodist Hospital, in Minneapolis, as a student nurse, and in June, 1894, was graduated. The following September she matriculated in the medical department of the University of Minnesota, from which she received the degree of doctor of medicine in June, 1897. Her license, No. 776 (R), to practice in the state, she received from the Medical Examining Board of the State of Minnesota on June 10, 1897. For the next six months, living in Dover, she practiced medicine in the communities of Dover and Eyota. On January 1, 1898, she joined the staff of the Drs. Mayo, Graham and Stinchfield in Rochester, primarily as assistant to Dr. Charles H. Mayo in the treatment of diseases of the eye, ear, nose and throat; a little later she was given charge of the work on refractions of the eye.

On February 14, 1900, Gertrude Booker was married to George W. Granger, of Rochester, at the home of her brother, F. A. Booker, at Quincy. Mr. Granger, later Judge Granger, as mentioned earlier, was a native of Olmsted County and a brother of Dr. Charles T. Granger; he first was married to Ophelia Cook, a native of Rochester, on June 24, 1896. Mrs. Granger died on April 5, 1898, leaving an infant daughter, Ophelia C. Granger.

After her marriage Dr. Booker Granger managed the dignified home on Third Street, S.W., and carried on her professional work. She was on the staff of the Drs. Mayo until March 1, 1914, when she became a full time health officer in the city of Rochester, again as assistant to Dr. Charles H. Mayo, who since May 1, 1912, had been city health officer. She resigned from public health work after two years to conduct a limited practice as consulting refractionist, with an office on Broadway. In this work she continued until shortly before her death, which occurred at Rochester on July 5, 1928. She was survived by her husband and by relatives in Olmsted County and elsewhere.

Dr. Booker Granger was a member of the Southern Minnesota Medical Association, the Minnesota State Medical Association and the Alumni Association of the Mayo Foundation. A respected citizen of Olmsted County all her life, she possessed the esteem of associates and the many who profited by her skill, and the high regard of friends who were privileged to know her well.

G. W. Green, an eclectic physician, a native of New York born in 1827, came to Minnesota in 1856 because of "a disposition to pulmonary complaint," and settled in Pleasant Grove, Pleasant Grove Township, Olmsted County. He regained his health and, like many of his contemporaries, in addition to practicing medicine ran a general store and engaged in public service. For the term of 1859-1861 he was a member of the Minnesota House of Representatives.

In September, 1861, Dr. Green removed with his wife and four children to Lake City, Wabasha County, where he developed a good practice. It is said that he was briefly in Goodhue County prior to going to Lake City. In 1871 a heavy cold resulted in his prolonged illness, and the summer and autumn of 1872 he spent in California in the hope of improvement. He died on Thanksgiving Day, November 28, 1872, in Lake City. The funeral services were conducted at the Methodist Church, of which he was a member, under the auspices of the local Masonic Lodge.

Stewart V. Groesbeck (1841-1908), an eclectic physician, a native of Otselic, Chenango County, New York, was in High Forest, Olmsted County, the greater part of the time from 1868 into 1872. Earlier, for about a year and a half, into 1865, he had been in Houston County, associated with Dr. P. T. Bowen, who at one time was in Houston. From High Forest Dr. Groesbeck went to Marshall, Minnesota, and thence, after about fourteen years as a citizen and practitioner of some success and importance, he went to Dakota Territory. On June 23, 1887, he received his license to practice medicine in Dakota, having passed the official examination. He was then living in Watertown; by 1906 he was in Spearfish. Later he became surgeon to the National Home for Disabled Volunteer Soldiers at Hot Springs, South Dakota, and he died in that institution on December 31, 1908. He was at the time of his death a member of the American Medical Association.

Biographical notes on Dr. Groesbeck appeared in an article by Eckman, in 1941, on homeopathic and eclectic medicine in Minnesota, and in a paper by Guthrey, in 1945, on the history of medicine in Houston County. Eckman, citing Neill, stated that Dr. Groesbeck in 1871 received a license to practice medicine in Minnesota, and inferred that the doctor had been affected by the Medical Practice Act of March 4, 1869 (soon afterward repealed). Recent information has confirmed this inference: When in May, 1869, the late Dr. David Sturges Fairchild (1847-1930) of Clinton, Iowa, arrived in High Forest with the ink scarcely dry on his diploma from the Albany Medical College, of New York, he found there two physicians, of whom one was Dr. Alexander Grant, well qualified but inactive professionally. The other was an "army doctor," bluff and jovial and popular in the community, who did not possess a record of formal medical study, almost certainly Dr. Groesbeck. Long afterward Dr. Fairchild wrote, in part: "The Medical Practice Act . . . which had created so many vacant places by suppressing the uneducated doctor, was repealed and brought back my predecessor. The doctor . . . who was only theoretically barred from practice, remained in the background and could easily be found. It was humiliating to see a man with no medical training get the patients, but I could only wait." Dr. Fairchild remembered this practitioner as a vender of homeopathic remedies.

(To be continued in the November issue.)

President's Letter

MEDICAL EMERGENCY: WORLD SIZE

With the Korean conflict has come our second world medical emergency in ten years—an emergency of indeterminable length and intensity. What we learned, in the process of discharging our World War II responsibilities, is valuable in assisting us to assume our obligations during this critical period; but the organizational blueprint falls short of 1950 requirements.

As in World War II, a Committee on Procurement and Assignment has been organized within the Minnesota State Medical Association. The committee will work with representatives of the military service in obtaining the necessary number of physicians for duty with the armed forces without inequitable hardship to the communities they serve.

Medical reservists are being summoned by direct call; and the new amendment to the Selective Service Act provides for the induction of men needed in medical, dental and specialist categories. These men, under fifty years of age, will be called initially from the group of ASTP and V-12 students and others deferred to continue their education who have had less than 90 days active service.

But the role of the profession will assuredly not be confined to war service, vital as that duty is. The threat of atomic bombing demands that we become proficient in the care of radiation victims so that a war in our own backyards does not find us hopelessly vulnerable.

Difficult and challenging days lie ahead of us, as we strive to do our part in the prosecution of war without losing our perspective on the continuing problems of America's health.

Nor should we be led, blindly, into a patriotic acceptance of controls that are inconsistent with the freedoms for which the nation is fighting. Certain controls may be necessary, of course, but Americans have built a great nation on the basis of individual responsibility and this same quality of responsibility should be able to carry us through the exigencies of war.

President, Minnesota State Medical Association

◆ Editorial ◆

CARL B. DRAKE, M.D., *Editor;* GEORGE EARL, M.D., HENRY L. ULRICH, M.D., *Associate Editors*

CIVIL DEFENSE

IT IS to be hoped that no atom bomb will ever be dropped on any of our cities. We must admit, however, that the greatest danger facing our country at this moment is a concerted attack on our large centers of population by Russian bombers. Incidentally, the airplane is not the only way an atom bomb could gain entrance to the country. Is there anything to prevent the importation of the component parts of an atom bomb through the Russian Embassy in Washington and its assembling at vital points? There is also no reason for expecting any such warning as a declaration of war as a prelude to atom bombing. As an indication that the Russians have bombing our country in mind is the fact that they themselves are preparing defenses against bombing of vital points in their own country. It is argued that inasmuch as the Russians must know we would never resort to bombing unless we had bombs dropped first on us, their defense preparations indicate that at sometime they will drop atom bombs on us.

It seems a foregone conclusion that any defense against Russian airplanes bearing atom bombs cannot be 100 per cent effective. Any defense measures must of necessity be on a national scale, and a large air force strategically placed and ever on the alert must be relied upon to minimize the possible damage. Airplane defense is being supplemented by the construction of radar and control stations. The establishment of local Ground Observers Corps to implement radar and the Civil Air Raid Warning System is in process in the U. S. Minnesota has completed organization of 264 posts in the 35 counties involved and is now field checking for a test to be conducted by the Air Force in November.

When a bomb is dropped, defense methods planned in advance by each locality will be called into play. If a bomb were to be dropped today, we can be sure no one would know what to do and panic would result. It is high time each unit of population, such as a municipality, city and state, make civil defense plans in case a bomb is dropped.

Much progress has been made in organizing for civil defense on a state basis. An office for Civil Defense for Minnesota has been established at 1003 Commerce Building, Saint Paul (Telephone Garfield 7356). Colonel E. B. Miller is Director and David Harrison, Assistant Director. This office deals directly with the elected heads of local governments and encourages municipalities throughout the state to create local civil defense planning bodies to meet disasters in time of peace or war. Some 250 Minnesota municipalities have already organized planning groups and are in various stages of planning. No community is too small to plan because of the possibility of being called upon to contribute individuals and teams in inter-community co-operation. Stricken areas must receive outside help. Local planners should take inventory at once of existing resources of major importance to disaster relief, such as public utilities, alternate routes and means of transportation, emergency shelters, feeding and clothing of evacuated persons, medical, nursing and hospital facilities, fire fighting equipment, policing, first aid, sanitation, availability of plans and blueprints of existing water, gas, power and light facilities. The various agencies which will be called upon to perform certain duties following a bomb explosion should be informed in advance in order to avoid confusion. The medical profession will be called upon, along with other groups, to perform certain duties and should be prepared.

On October 8, 1948, Governor Youngdahl appointed a Civil Defense Commission which included Dr. A. J. Chesley, secretary of the Minnesota State Board of Health, as chairman of the State Health Section of the Civil Defense. This section is made up of the secretaries of the Minnesota State Medical, Dental, Nurses, Hospital, and Pharmaceutical Associations, the Minnesota Veterinary Medical Society and the Minnesota Public Health Conference. The state has been divided into nine District Health Sections which are actually the same as our Councillor districts.

Each Councillor of the State Medical Association is chairman of his District Health Section which includes representatives of the dental, nursing, hospital, pharmaceutical, and veterinary professions and the M.P.H. Conference. It is the function of each chairman to keep in close touch with the chairman of the city and county Defense Councils and the Red Cross in his district. The Civil Defense Councils of the municipalities are responsible for the execution of the general orders of the Civil Defense Director, and the Medical Health Officers of the eighty-seven counties of the state are members of the local councils. The duties of the councils include co-ordination of health and defense activities locally.

On August 31 a short course on Civil Defense was arranged by Colonel Miller at the University which was attended by about 150 individuals, including councillors, health officers, sheriffs and fire department chiefs. The program included: Effects of Shock and Blast and Fire Attacks on Structures; Mob Psychology and Mass Hysteria; Defense against Atomic Weapons, Using the Geiger Counter, et cetera.

This is a good beginning, but there is an obvious need for the medical profession to inform itself not only on the treatment of victims of atomic bombing, but to make plans in each locality for not only the treatment of bomb victims but their transportation and hospital care.

Dr. Jan H. Tillisch, chairman of the Committee on Military Affairs of the MSMA, in his report to the Council emphasized the need for self-education of the physicians and urged that each county medical society arrange a meeting on Civil Defense to be addressed by someone who has taken a short course such as that mentioned. He also recommended the sending of articles on the treatment of bombing victims to the members by the State Association.*

In meeting such a catastrophe as one caused by an atom bomb, it is obvious that the American Red Cross is not equipped to handle the situation alone. While it functions well in case of floods, tornadoes, fires, earthquakes and epidemics, the Red Cross is too limited in funds to assume large responsibilities in war disasters. Because of its experience with the handling of disasters, however, it can give valuable assistance. The Red Cross has agreed to assist in the program of civil defense in training in first aid and in home care of the sick and injured, in providing food and clothing and temporary shelter, and in participating in a war-time nation-wide blood program. Truly, such a catastrophe as one caused by an atom bomb would require the co-ordinated efforts of everyone planned in advance.

SYMPOSIUM ON HYPERTENSION

THE SYMPOSIUM on Hypertension presented September 18-20, 1950, by the University of Minnesota, with the generous financial support of the Mayo Foundation for Medical Education and Research and the Variety Club of the Northwest, passed expectations as far as interest and attendance were concerned. Presented in honor of Drs. Elexious T. Bell, Benjamin J. Clawson and George E. Fahr, the attendance was so great that the Nicholson Hall Auditorium proved inadequate and the main hall of Northrop Memorial Auditorium had to be utilized. An estimated 400 to 500 physicians were in attendance at each session.

The printed program contained the names of many scientists, including physicians and surgeons who have been interested in the subject of hypertension. Opportunity was given for those not on the program to take part in the discussions, and in this group were many whose names are prominently associated with the problem of hypertension.

The various morning, afternoon and evening sessions were presided over by University professors, some located in Minneapolis and others at the Mayo Foundation in Rochester. Doctors Bell, Clawson and Fahr each presided over a session and also appeared on the program.

The dinner in honor of Doctors Bell, Clawson and Fahr was held on the evening of the last day of the session at the Minneapolis Club. Some 150 physicians attended and paid tribute to the retired physicians. Presided over by Dr. George N. Aagaard, Director of Postgraduate Medical Education at the University of Minnesota, to whose efforts the success of the meeting was largely due, the dinner guests were addressed by Dean Harold S. Diehl, Victor Johnson, head of the Mayo Foundation, Dr. Elexious T. Bell and Arthur W. Anderson, president of the Variety Club of the Northwest.

Fortunately, the material presented at the three-day meeting will be published by the University. Although there is general agreement that the cause of hypertension is unknown and there is no general agreement as to the treatment of the disease, a symposium of this sort at which frankness typified the remarks of the speakers offered a fine opportunity for the exchange of ideas. The published proceedings will afford the reader present-day opinions on the subject of hypertension in a condensed form.

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*The following two publications are recommended to the profession: Medical Aspects of Atomic Weapons, Supt. of Documents, U. S. Government Printing Office, Washington 25, D. C. (Price 10 cents) and Effect of Atomic Weapons, same address, (Price $1.25) issued in September, 1950.

CORONARY THROMBOSIS IN EARLY LIFE

THERE appears in this issue a report by Drs. Parsons and Heimark on the effect of diet and smoking on the prothrombin blood level of a small number of normal individuals. They report that the prothrombin level is lowered after eating a full mixed meal more than after an all-vegetable meal, and by smoking. The authors are searching for a means of detecting such individuals as may be susceptible to coronary thrombosis at an early age and possibly developing measures for prevention.

The authors present their findings and a suggestion for further study. If their findings are confirmed it would not justify a vegetable diet and abstinence from smoking for everyone. The problem of selecting those most likely to develop coronary trouble would still exist.

A low prothrombin time does not produce coronary thrombosis. This is due to sclerotic changes in the coronary arteries, the cause of which is not known but runs in some families. Just what is inherited is not known. Some have incriminated the handling of cholesterol, but blood levels of cholesterol do not correspond with the ingestion of certain fats. Blood pressures are regulated by reflex nerve impulses. If excessive reflex impulses result in hypertension, what is inherited? And does repeated elevation of blood pressure lead to arteriosclerosis? Should those who show an increased blood pressure on using tobacco refrain from its use because of the danger of developing arteriosclerosis of the coronaries?

The authors believe that the difference in prothrombin levels—that is, the low prothrombin time—is what precipitates the coronary attack. That they have not proven. Do some normal persons have a more marked lowering of their prothrombin time by heavy eating and smoking? If further investigation proves this to be the case, should these individuals be put on an anticoagulant constantly—a rather difficult and costly procedure fraught with some danger? And further, will the maintenance of a normal or high prothrombin time prevent a coronary thrombosis? To advise a patient with evidence of coronary arterial disease to abstain from overeating and tobacco is good advice. Whether individuals likely to develop coronary arteriosclerosis can be identified by their prothrombin-time reactions to eating and smoking remains to be proven. The article is provocative of thought and investigation.

REHABILITATION OF HANDICAPPED CHILDREN

Approximately five to seven out of every 100 children who return to school this fall will have a physical limitation, predicts Dr. Alfred R. Shands, Jr., medical director of the Alfred I. duPont Institute of the Nemours Foundation, Wilmington, Delaware.

In an article published in the August, 1950, issue of *The Crippled Child* Magazine, official publication of the National Society for Crippled Children and Adults, the Easter Seal Agency, Dr. Shands says that few people realize the tremendous number of children with physical limitations. If proper care is not given to these children in their early years, the greater number of them will grow into adult life—handicapped both in mind and body.

As Dr. Shands says, "The great majority of these children must look to the public school system for their education, hence, the importance of every classroom teacher knowing what the problem is and how to meet it."

"If time is taken to analyze the child's defects, and if he is guided accordingly, many times the teacher will undoubtedly be the principal factor in the success or failure of the child's life."

Dr. Shands adds that the classroom teacher who knows which children have physical limitations should find out from the parents what has already been done for them and ask the school nurse and doctor what she can do to aid in the child's rehabilitation.

"The teacher's approach to the child should be one of friendliness, warmth, interest, patience, kindliness, and an honest liking for the child," continues Dr. Shands. "The teacher should understand his handicap, realize what his abilities are, and guide him in the pathway of learning and then see that he has the confidence in himself to successfully carry on in life."

The child must come to the realization that, although life is hard, he must face the world. Dr. Shands points out that the crippled child should be given neither excess sympathy nor pity. As early as possible, he ought to learn to do everything he can for himself, and should not be assisted unless absolutely necessary or ask needless favors of others.

"It is inevitable," concludes Dr. Shands, "that the teacher can be truly effective only if she understands the physical needs of the child and can help him toward the best use of his abilities."

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

AMA GETS REPORT ON BRITISH MEDICAL ASSOCIATION CONFERENCE

David Clayton, AMA's London representative, recently reported that the theme of the British Medical Association annual conference was "the ever-present dissatisfaction and frustration felt by the majority of the nation's general practitioners under the National Health Act." Mr. Clayton noted that sixteen resolutions were passed warning the Labour government that if better treatment in remuneration and a decrease in ever-increasing bureaucratic control were not forthcoming, then British doctors should walk out of the scheme in a body.

Mr. Clayton reports that the conference was sparked by a small but extremely vocal body of doctors, the Fellowship of Freedom in Medicine. This group is working hard to try to recover lost ground. Their main line of attack is to "bring before the British public the more flagrant abuses under the scheme, and to keep on plugging away inside the parent body, the B.M.A."

COMMITTEE STUDIES BRITISH MEDICAL EDUCATION

After making a thorough study of the background and evolution of the National Health Service in Great Britain and its relation to medical education there, a special committee of the American Medical Association has submitted its report. The committee, which did its research during December, 1949 and January, 1950, consisted of deans of American medical schools: Harold S. Diehl, M.D., Minneapolis; Loren R. Chandler, M.D., San Francisco; and Stanley E. Dorst, M.D., Cincinnati.

Speaking of the general practitioner and his role in the education picture, the committee reports:

"Even before the National Health Service Act the lot of the general practitioner in Britain was not too happy, and today it is demoralizing. We do not refer to overwork but rather to the fact that he seems destined to a routine life which does not offer the necessary facilities to practice good medicine and which fails utterly to offer the professional incentives which lead to continued growth of the physician. . . . If we really believe that the general practitioner is the 'backbone of medicine,' then let us prepare him for the most difficult task in medicine. After our experience in England, we are confident that this is the most important job facing the medical schools of the United States during the next decade."

The committee report concludes, saying:

"Finally, we would emphasize again the all-important social, economic and geographic background against which British socialism developed. The National Health Service Act is only one facet of British socialism; the welfare state does not exist except as a part of the whole. Furthermore, conditions in Great Britain are so different from those in the United States that it would be folly to contend that what may be necessary for Britain today should be admirable for transfer to the United States. We, fortunately, have the time that is necessary to evolve an adequate medical service for our people without resorting to the centralization of authority in a welfare state."

Takes Stronger View

Taking a more forceful view of the evils evident in European socialism, Dr. William C. Black, former president of the Association of American Physicians and Surgeons, gives first-hand accounts of the detrimental results of the National Health Service in England:

"Stayed in Kenilworth, England for a couple of days. . . . Found out the proprietor of the hotel was an anesthetist—specialist—and had quit a year ago, not because of pay, but because under the regulations of the National Service Act he was not permitted the freedom of judgment and action essential to the best interests of the patient. . . . Rather than do sub-standard work he just quit and now makes a living from the hotel."

This same doctor told Dr. Black, "This Act had the same effect on me, as a physician, as though I had lost an arm or gone blind or developed some other physical disability which would make it impossible for me to do my work properly."

LOBBY INVESTIGATIONS BRING ACID COMMENTS

After Oscar Ewing recently bragged of his right to crusade for Truman's compulsory medical insurance plan, the *Chicago Tribune* reminded its readers that "Ewing is the most vigorous propagandist of the day in the cause of political medicine." Said the *Tribune:*

> "Ewing proclaimed that 'it was not only his right, but his duty' to propagandize in favor of the Truman compulsory medical insurance plan. In this mission he admitted to having the assistance of sixty-five full-time publicity men, paid by the taxpayer."

Magazine Adds Its Voice

Defending the right of the Committee on Constitutional Government to spend $40,000 a month for printing and distributing John Flynn's *The Road Ahead,* the *Saturday Evening Post* avers that the government is the biggest lobby in the country and spends much more than $40,000 to influence legislation. The *Post* quotes Frank Chodorov in Human Events:

> "Peanuts and fiddlesticks. Every hour of the day the agencies of the Government spend more than that monthly average to influence legislation, and the legislation they plug is to lengthen their tenure, increase their appropriations, better their emoluments, strengthen their hold on the public purse. . . . The biggest, more pernicious, most unscrupulous and entirely selfish lobby in Washington is the Government. . . . Its list of contributors includes every man, woman and child in the United States. And yet it has the effrontery to point the finger of scorn at an organization that digs up a piddling $40,000 a month for printing and distribution of literature. . . ."

Suggests a Positive Attack

The *Post* then suggests a more vigorous attack against the aggressions of the Buchanan investigating committee:

> "We challenge your authority under the Constitution, but we are not embarrassed or ashamed of what we are doing. John Flynn's *The Road Ahead* is an angry book, with here and there an excess of zeal, but it does expose the socialist nature of the Fair Deal program, an analysis already accepted by the British Labor Party. If there is any restriction in America on the right of persons, including corporations, to challenge the pretensions of a political group in this country, it hasn't yet been put in the form of law. Until freedom of speech has been outlawed by Congress, we intend to support our ideas by whatever authorities seem to us likely to arouse the people to their danger.
>
> "The only way the battle for a free economy will be won is by forthright resistance in terms that can be understood, not exclusively by demurrers and legal responses and applications for injunctions, important as these are. If the fight can be staged in an arena where people can see what punches are being thrown, free enterprise may have a chance. It certainly has none if its protagonists always make themselves look like bad boys talking their way out of something sly and discreditable."

American medicine has certainly not been one of those "bad boys" in its open battle against the infiltration of political medicine and the remaining gamut of socialistic schemes.

JOURNAL QUESTIONS MORE SECURITY

Now that President Truman has signed the bill promising social security to some ten million more persons and boosted benefits to those already under its wing, the Wall Street *Journal* can only ask, "What security?"

The most that a family can draw is the promised $150 a month for life, after all principal wage earners have retired. And, the *Journal* says:

> "We can hope, too, that the one hundred and fifty dollar bills will fulfill the real promise to these old people, that it will buy for them what they now dream of. We can hope. But in all candor we must say it is a slim hope.
>
> "Before this new $150-a-month level, the maximum for the same family was $85 a month. Five years, ten years ago $85 a month would have bought more security than the $150 will today. At the very best, the raised maximums do no more than catch up with the cheapening of the dollar. To talk about 'increased benefits' in the new law, as the promisers do, is sheer balderdash.
>
> "This time the ink will hardly dry on the new promises before they begin to fade. A hundred and fifty dollars today won't buy what it would have bought last week. And this same government which promises so much is, at the same time, engaged in the same practices—reckless spending and calculated credit inflation—that have in ten years torn the paper dollar in two."

For Instance—

A short, but pointed editorial also appears in the *Journal,* showing by example, the duplication in the numerous bureaus, agencies, boards and committees which carry on the big business of federal government:

> "President Truman will add a 'panel' of three members to the existing Loyalty Review Board. It will not replace the Board, but will have the duty of reexamining

the examination of F.B.I. files by the Board. So the Washington correspondents tell us, on the best anonymous authority they can get. That is to say:

Great fleas have little fleas on their back to bite 'em,
And little fleas have lesser fleas, and so *ad infinitum*.
And the great fleas themselves, in turn, have greater fleas to go on;
While these again have greater still, and greater still, and so on."

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

230 Lowry Medical Arts Bldg.
Saint Paul 2, Minnesota

J. F. DuBois, M.D., Secretary

District Court of Ramsey County, Minnesota, Declares Vitamins to Be Drugs and Medicines
Sale by Grocers and Food Stores Declared Illegal

Re: Milton Culver doing business as Culver's Food Market vs. John Nelson, John J. Pastenacki, Victor E. Feit, J. Norman French, B. A. Deterling and F. W. Moudry (Minnesota State Board of Pharmacy).

In a test case involving the sale of vitamins in tablet, capsule or liquid form, in grocery stores, meat markets, food stores and other similar places, the Hon. Albin S. Pearson, Judge of the District Court of Ramsey County, Minnesota, on August 7, 1950, made an order denying the motion of the plaintiff in the above entitled action for amended findings of fact, conclusions of law, order for judgment or for a new trial. Judge Pearson granted a stay until October 2, 1950, to permit the plaintiff to appeal from the order, or to avail himself of any other legal remedies that he might have.

Mr. Culver, the plaintiff, operating a retail food store in St. Paul, Minnesota, instituted the action against the members of the Minnesota State Board of Pharmacy to have judicially determined the construction and validity of the Pharmacy Act of 1937. The plaintiff alleged that he brought the action for his own benefit and all other retail food stores of the State of Minnesota, similarly situated. The plaintiff alleged that he had a lawful right to sell, in his food store, articles commonly referred to as food vitamins and food supplement vitamins. It was the claim of the plaintiff that such vitamins were sold in the original labeled packages and were for the purpose of supplementing or fortifying the ordinary or usual diet, and that such vitamins were not sold for medicinal purposes or for the purpose of treating or curing any disease of man. The case was tried before Judge Pearson without a jury commencing May 24, 1948. Among the witnesses for the plaintiff were Dr. Bernard Oser, a chemist of New York City, and Dr. Norman Jolliffe, a physician and surgeon of New York City. Among the witnesses for the Minnesota State Board of Pharmacy were Dr. Russell M. Wilder of the Mayo Clinic, Rochester, Minnesota, Dr. Ole Gisvold, Dr. Ancel Keyes and Dr. Raymond Bieter, all of the University of Minnesota, and Dr. Charles Hensel, a physician of St. Paul. Doctors Wilder, Bieter and Hensel testified that vitamins are drugs and medicines. Following the trial the Court permitted each side to submit written briefs outlining their respective positions and setting forth various citations to sustain their respective claims. After thorough consideration of the matter, Judge Pearson, on April 19, 1950, filed the Court's findings of fact, conclusions of law and order for judgment in favor of the defendants.

In his decision Judge Pearson found that vitamins when prepared in tablets, capsules or liquids composed of pure or concentrated vitamins, natural or synthetic, are drugs within the definition of the term "drug" under the laws of the State of Minnesota. The Court also found that such vitamins when offered for sale in the original boxes are not common household preparations sold for nonmedicinal purposes. The Court also found that such vitamins are not harmless proprietary medicines within the meaning of the laws of the State of Minnesota.

Judge Pearson's decision is of the utmost importance, not only to members of the pharmaceutical profession, but to the medical profession and the public generally. The Pharmacy Board was represented in the case by the Hon. J. A. A. Burnquist, Attorney General of the State of Minnesota, and his Chief Deputy George B. Sjoselius.

Surgical Instruments Found in Possession of Albert Lea Man Arrested on Traffic Charge

State of Minnesota vs. Tracy A. King

Early in the morning of September 13, 1950, Richfield, Minnesota, police arrested Tracy A. King, thirty-five years of age, 524 Park Avenue, Albert Lea, Minnesota, on a charge of careless driving. King was driving an Oldsmobile four-door sedan with Minnesota license plates No. 152-808. In the car police found a doctor's medical bag containing numerous surgical instruments, a stethoscope and various medicinal preparations. A receipt was also found made out to "Dr." King. The Minnesota State Board of Medical Examiners was immediately notified by Sheriff Ed Ryan of Hennepin County, and a lawyer for the Medical Board interviewed King. King admitted that he had been representing himself as a doctor; that he had told conflicting stories of having gone to medical schools in Canada and also in Europe. During the questioning, King stated he was born February 2, 1915, at Winnipeg, Manitoba; that he was a Canadian citizen and entered the United States at Noyes, Minnesota, August 15, 1949. He stated that he was a tile setter by trade and had no medical education. He denied that he had actually treated any patients. King stated that his family name was Stroppa, and that he had lawfully changed his name in court at Winnipeg. The matter has been investigated further at Albert Lea, and it has been ascertained that King has an application on file in the District Court there, to become a citizen of the United States. King claimed that he had the surgical instruments and the medicinal preparations in his possession merely for the purpose of "impressing people."

On September 18, 1950, King pleaded guilty in the Municipal Court of Richfield, to a charge of careless driving and was fined $50.00 by Judge Joseph J. Poitras; the fine was paid. The Minnesota State Board of Medical Examiners is continuing the investigation, and anyone who has any information in reference to King, or any of his medical activities, is respectfully requested to communicate with the Minnesota State Board of Medical Examiners at 230 Lowry Medical Arts Bldg., Saint Paul, Minnesota.

Modern public health does not prevent death alone. It also prevents disease. For every life preserved by a tuberculosis program, scores of individuals are saved from invalidism. For every life saved from malaria, hundreds of individuals are maintained as active producers in the population.—*Am. J. Pub. Health,* August, 1950.

Minneapolis Surgical Society

Meeting of December 1, 1949

The President, Ernest R. Anderson, M.D., in the Chair

CONTROLLED RESPIRATION IN THORACIC AND UPPER ABDOMINAL OPERATIONS

JOHN H. GIBBON, JR., M.D.
Professor of Surgery, Jefferson Medical College
Philadelphia, Pennsylvania

THE PREVENTION of pain has become the least important part of modern anesthesia. Similarly, muscular relaxation for abdominal operations presents no problem to the modern anesthetist. With the solution of these two difficulties modern anesthesia is properly concerned with avoiding disturbance of pulmonary and cardiac function. The function of the lungs is, briefly, to provide entry to the body of the oxygen which is required for metabolic processes and to furnish exit for the carbon dioxide which accumulates as a result of these same processes. The function of the heart is simply to move the blood through the lungs and then to all parts of the body so that these fundamental gas exchanges which take place in the tissues can be compensated for by the reverse process in the lungs.

In the present surgical era the diaphragm has ceased to divide surgeons into the two air tight compartments, as it does the organs of the body. Many upper abdominal operations can be performed with greater ease through a thoracic, or a combined thoracic-abdominal incision. It thus becomes a concern of most surgeons to be interested in this important aspect of modern anesthesia, i.e. the maintenance of normal cardiorespiratory function during operations.

In the absence of adhesions between the lung and the chest wall, opening of one pleural cavity results in the collapse of the lung on that side to about one third of its former volume. This is due to the contraction of the elastic tissue of the lungs. If this elastic tissue were not present and the enormous filming surface, forty square meters, were maintained by stiff alveolar walls, as in a marine or rubber sponge, most of the disturbances of pulmonary function which I am about to discuss, would not occur. With one pleural cavity widely opened the respiratory movements do not result in a normal exchange of gases between the alveoli and the outside air. In addition the respiratory movements, which under these circumstances are greatly increased in magnitude, produce movement of air back and forth between the two lungs instead of in and out of the trachea. The oxygen content and tension of the alveolar gases rapidly declines while the carbon dioxide content and tension rapidly increases. The anoxemia and acidosis which occur are rapidly fatal.

Two ways have been proposed to overcome the collapse of the lung when the pleural cavity is opened. One is to keep the lung exposed to pressure slightly below atmospheric. The other is to maintain a pressure within the lungs which is slightly above that of the surrounding atmosphere. To accomplish the former, Sauerbruch,[7] around the turn of the century, constructed a large chamber maintained at an air pressure slightly below atmospheric, in which the surgeon and his assistants operated. The patient's head projected outside the chamber through a tightly fitting rubber collar. This ingenious but cumbersome apparatus was not widely adopted because of its obvious drawbacks. To accomplish the second method of maintaining expansion of the lungs a positive pressure cabinet was devised. This consisted of a box in which the patient's head was placed through a snug rubber collar which fitted around the neck. The air pressure in this box was maintained slightly above that of the atmosphere. Samuel Robinson[5,6] of Boston, between 1900 and 1910, demonstrated the efficacy of such a positive pressure cabinet in animal experiments and devised one for use with human patients. A simpler method of maintaining positive pressure by the use of a tightly fitting face mask soon replaced the more cumbersome positive pressure cabinet.

Stimulated by Chevalier Jackson's development of the bronchoscope, intratracheal tubes in human patients have now been widely adapted for maintaining a positive pressure within the lungs during intrathoracic operations. These intratracheal tubes ensure an adequate air way at all times and permit the aspiration of any material that may accumulate in the tracheobronchial tree. The great value of these tubes has become so well established that their advantages do not need to be stressed here. Some anesthetists employ these tubes for positive pressure by placing a tightly fitted face mask over them. Others draw the outside end of the tracheal tube through a rubber diaphragm in the face mask and then connect the tube directly with the anesthetic circuit. The drawback to either of these procedures is that, with the use of positive pressure, air passes down the esophagus and enters the stomach, producing gastric distention which requires decompression by stomach tube during the operation or postoperatively. An inflatable rubber cuff around the outside of the lower end of the tracheal tube was soon developed to obviate this difficulty. Gentle distention of this rubber cuff produces for all practical purposes an air-tight system between the air in the lungs and that in the anesthesia circuit, without the interposition of a face mask. Such a system is that most commonly employed today for intrathoracic operations. The problem of preventing collapse of the lungs has thus been satisfactorily solved. Adequate ventilation of the lungs still remains a problem.

Even with the lung inflated, it is still necessary for the carbon dioxide, which is given off from the blood in the alveoli, to pass from the alveolar air to the atmospheric air. Similarly it is necessary to provide for constant replacement of oxygen in the alveolar air which is taken up by the blood. Pure physical diffusion of gases in the closed air circuit is not enough. There must be a rhythmic movement of gases back and forth between the rubber bag in the anesthetic circuit and the alveoli in the lungs. With one pleural cavity widely opened the normal action of the muscles of respiration do not produce an adequate exchange of gases between the alveolar air and the external anesthetic circuit. The increase in size of the thoracic cage which occurs with normal inspiration merely results in air passing into the pleural cavity of the opened side of the chest, with relatively small amounts of air entering the lungs through the tracheal tube. Expiration similarly lacks effectiveness.

The lack of effective ventilation was not apparent at first, because by the use of a high percentage of oxygen in the rebreathing circuit it has been possible to maintain normal oxygenation of blood during the course of prolonged intrathoracic operations. Thus, if ether is the anesthetic agent, and oxygen is used instead of room air, the oxygen tension in the alveoli can be more than quadrupled. Under these circumstances ventilation may be greatly reduced without affecting the oxygenation of the blood. The story however is quite different with carbon dioxide. Here the question is not one of supplying a gas to the alveoli, but of removing a gas from them. Only adequate ventilation can achieve such removal of carbon dioxide. Probably the fact that cyanosis can be avoided by using a high concentration of oxygen in a closed rebreathing system with an open thorax has drawn attention away from the inadequate ventilation which occurs under these conditions. Unfortunately an increase in the carbon dioxide tension of the arterial blood does not produce any change in the color of skin and mucous membranes, as does the accumulation of reduced hemoglobin in the blood. That the ventilation is inadequate under these conditions of positive pressure breathing has recently been demonstrated by Beecher.[1] He has shown that while adequate oxygenation of the blood can be maintained in the course of long intrathoracic operations, the carbon dioxide tension in arterial blood and alveolar air can rise to quite alarming heights with a concomitant profound drop in the pH of the arterial blood.

Some realization that the ventilation is inadequate under these circumstances has led anesthetists to assist the respiratory movements by gently squeezing the bag with inspiration. This increases somewhat the exchange between the alveoli and the external anesthetic circuit. However, even in these circumstancs, Beecher states that he is only able to prevent a rise in the carbon dioxide tension in about one third of his patients. The reason probably lies in the fact that expiration is not assisted in any way; in fact, the pressure in the external circuit with positive pressure breathing increases with expiration, thus hindering the passage of gas out of the lungs into the breathing bag. Thus with positive pressure breathing unassisted by compression of the breathing bag by the anesthetist, the pressure in the rubber bag and hence in the external circuit decreases with inspiration and increases with expiration. These fluctuations of pressure directly oppose the movement of air from the alveoli to the external circuit, and vice versa. By compression of the rubber bag one phase is helped, but not the other.

Stephens et al[8] in 1947, advocated the use of curare in intrathoracic operations and a maintenance of normal ventilation by manual compression of the rubber breathing bag in the closed circuit. If the bag be kept partially collapsed under these circumstances there is no resistance to expiration, and inspiration is effected by manual compression of the bag. If the bag be kept tense, however, ventilation again becomes impaired due to the increase in pressure with expiration. Such manual control of respiration is a tiresome and repetitive task for the anesthetist in operations lasting many hours, and interferes with his other occupations, such as controlling the depth of the anesthesia, taking the blood pressure, recording the pulse rate and supervising the adminstration of fluids.

Crafoord[2] in 1939, advocated the use of a mechanical apparatus for compressing the rubber bag by air pressure to provide adequate ventilation. He stressed the importance of avoiding any resistance to expiration. He demonstrated in dogs that the accumulation of carbon dioxide in arterial blood could be avoided by this means. Mautz,[3,4] in this country, has made a similar demonstration in animals and has developed a simpler apparatus for the compression of the bag in the respiratory circuit by air pressure. Even more recently Mautz has developed a method of direct mechanical compression of the rubber bag.

Using curare and both Crafoord's apparatus and Mautz's machine, in a large series of intrathoracic and upper abdominal operations, we have been impressed with the very adequate ventilation obtained, as indicated by a study of the arterial blood gases in a small series of patients. With a few exceptions the marked increase in carbon dioxide tension and fall in pH, reported by Beecher, has been avoided. The advantages of the use of such a mechanical apparatus over manual compression of the rubber bag may be listed as follows:

1. The ventilation is adequate enough to avoid a profound drop in pH and marked rise in carbon dioxide tension in the arterial blood.
2. The ventilation is continuous and can be easily adjusted as to rate and depth.
3. The anesthetist is relieved from a manual test which is better carried out by mechanical means.

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Discussion

DR. RALPH T. KNIGHT: By coincidence, we had chosen the same subject for surgical physiological conference at the University when I learned that Dr. Gibbon was to speak on the subject of the "Physiology of Controlled Respiration." We were, therefore, very fortunate in having Dr. Gibbon discuss the subject with us there this afternoon.

Dr. Gibbon should not apologize for talking on this subject, for these problems of physiology associated with anesthesia must be of deep concern to the surgeon and the more familiar he is with them, the better will be the liaison between the surgeon and the anesthesiologist. I am sure that Dr. Gibbon's visit will further increase the prestige of anesthesiology in this community.

Do you not feel, Dr. Gibbon, that the negative pressure chamber and the positive pressure chamber to which you referred were far less physiologically effective than the intermittent positive pressure as we use it today?

You spoke of the elasticity of the lung creating the problem of ventilation by collapsing the lung when the chest is open. However, this same elasticity helps us in ventilation by expelling the gas each time after we inflate the lung.

You spoke of possible damage to the tracheal mucosa by too much pressure in the inflated cuff on the tracheal tube. We had that happen twice. Dr. Dennis then suggested that we inflate the cuff under control by a water manometer and made the first manometer for us. We now make our own cuffs out of contraceptive condoms. These are large enough in diameter to fill the trachea without stretching the rubber and, therefore, the manometer registers to true air pressure against the tracheal mucosa. We do not use more than 10 mm. mercury or 14 cm. water. However, this pressure in the cuff allows us to expand the lungs up to 10 mm. of mercury pressure with each intermittent expansion. More lung pressure than this blocks the pulmonary capillaries and brings pressure upon the heart, interfering with cardiac output.

Dr. Gibbon has been especially interested in adequate pulmonary ventilation to accomplish adequate elimination of carbon dioxide and to keep the pH of the blood at a normal level. I agree with him completely. It is of special interest to me that he found the Mautz machine with the circle type CO_2 absorber to be the most efficient. We have always believed this to be true.

We believe that a frequent test of the tension of CO_2 in the exhaled gas would help us to regulate the controlled respiration to the proper rate and depth. We have not yet been able to obtain an apparatus which will do this as frequently, quickly, conveniently and accurately as we need. Within a month we are to have a mass spectrometer in the operating room which has been prepared by Dr. Nier in our Physica Department. This will do the job, but the apparatus has cost about $15,000. We hope for a simpler and cheaper method.

Up to now we have depended upon the manual manipulation of the breathing bag to control and augment the respiration. A machine such as Dr. Gibbon has used would be a great physical relief, and we are stimulated to try it to see if it will meet the changing demands of the patient and the situation as well as the manual method. Our surgeons seem to need the lung entirely collapsed much of the time in lung surgery, but inflated often enough to keep it inflatable. In heart surgery, we never cease the manual respiration.

Dr. Gibbon's talk has been an inspiration, and we appreciate it very much.

DR. NATHAN KENNETH JENSEN: I have enjoyed Dr. Gibbon's excellent presentation of this very timely problem. We have all thought of respiration in much too limited a sense, our concern being primarily with pulmonary ventilation in relation to oxygen exchange. Dr. Gibbon's paper this evening graphically illustrates the necessity of also giving serious attention to the requirements of carbon dioxide exchange.

In thoracic surgery, we are frequently harder pressed to meet the requirements of carbon dioxide exchange than of oxygenation. The administration of high oxygen concentration will provide adequate oxygenation with very limited pulmonary ventilation, but there is no way to provide for adequate CO_2 elimination except by maintenance of good pulmonary ventilation.

The problem goes much deeper than this however, as respiration for the tissue cells is dependent upon a bellows, the lungs; a pump, the heart; and a distribution system, the circulation. Failure in any of these results in diminished respiratory exchange with resultant respiratory acidosis and anoxia. The anoxia is easier recognized and we are better equipped to correct it than the hypercarbia. An example is the surgical patient with emphysema and deficient pulmonary circulation. This patient will tax the skill of the most experienced medical anesthetist and still may be in severe respiratory acidosis at the termination of a long surgical procedure.

We have encountered severe diffuse capillary bleeding in several patients with inadequate pulmonary reserve who have slipped into respiratory acidosis after several hours of operating time. I would like to ask Dr. Gibbon if he has noted any tendency in patients known to be in respiratory acidosis to bleed excessively?

DR. CLARENCE DENNIS: In the course of his discussion this afternoon and this evening, Dr. Ralph Knight has pointed out that he felt that sudden emptying of the lungs after full inflation would be a very disturbing thing to a surgeon working inside the chest. Have you noted that the motion of the Crafoord respirator is in fact a source of difficulty in doing surgery with the employment of this machine?

I understand, Dr. Gibbon, that you have done some studies on oxygen saturation with continuous tracings throughout induction and performance of a considerable number of operative procedures. Would it be possible for you to tell us anything of your findings in this regard?

DR. GIBBON (closing): I appreciate very much the remarks of Drs. Knight, Jensen and Dennis. With regard to Dr. Knight's comments, I certainly agree that intermittent positive pressure when the thorax is widely opened is more physiologically effective as regards ventilation than the older negative or positive pressure chambers. It is quite true that the elasticity of the lung helps ventilation by aiding expiration with the thorax open. One should remember, however, that this elastic tension is very slight, being equal to the normal negative intrapleural pressure. Consequently the rubber rebreathing bag should not be kept distended as this will interfere with expiration. Dr. Dennis's manometric control of the air pressure in the inflated cuff of the tracheal tube is an excellent one, and should be widely adopted. If the tension of carbon dioxide in the exhaled gas could be rapidly and simply determined during the course of prolonged intrathoracic operations, it would of course be of great assistance in avoiding respiratory acidosis. I trust

(Continued on Page 1034)

Communication

PARATHION POISONING

To the Editor:

Parathion (O,O-diethyl O-p-nitrophenyl thiophosphate) has proved so highly efficient as an insecticide or pesticide that its importance economically is apparent and its usage is rapidly becoming widespread in agricultural communities. Unfortunately parathion is highly toxic for man as well as for insect life. It may be handled and applied safely if, and only if, stringent precautions are strictly observed. However, in spite of the emphasis placed on the need for such precautions excessive absorption may occur through relaxation of these precautions or through accidental heavy exposure. Physicians may therefore be confronted with cases of poisoning from this compound. The management of acute poisoning by a cholinesterase inhibitor is a medical emergency of a type seldom if ever up to this time encountered in medical practice. The following summary of information now available should therefore be of interest to physicians. From this it will be apparent that in this medical emergency the proper timing and dosage of the antidote atropine may be life saving.

The systemic effects of parathion are qualitatively similar to those of other cholinesterase inhibitors, and to the effects of the acetylcholine analogues (pilocarpine, muscarine, arecoline, mecholyl, doryl). Effects of parathion are interpreted as the result of accumulation of endogenous acetylcholine at synapses of the nervous system. They include giddiness, headache, nausea, vomiting, abdominal cramps, diarrhea, miosis, sweating, salivation, lachrymation, confusion, weakness, and muscular fasciculations. A sense of tightness is felt in the chest as the bronchi constrict and fill with mucus. Fatalities appear to result from constriction and secretions in the bronchi or arrest of the heart. On the other hand, recovery from the acute poisoning is usually complete and uneventful. There has been no evidence of permanent injury in such cases.

Treatment may be effective if atropine grains 1/100 to 1/50 (0.65 to 1.3 milligrams) is given at once and every hour or oftener as needed to keep the patient fully atropinized (mouth dry, pupils dilated). If the lungs have filled before the atropine takes effect, clear the bronchi by postural drainage. Oxygen is then indicated. Morphine is contraindicated. Muscular fatigue and weakness may reach a degree requiring artificial respiration. Following even mild symptoms no additional exposure to parathion or other phosphateesters should be allowed until time for cholinesterase regeneration has been allowed.

Intoxication by parathion or other CE inhibitors is an acute episode of 24 to 48 hours. It is terminated by cholinesterase regeneration and is followed by period of gradually decreasing susceptibility to small exposures. Successive parathion exposures may deplete cholinesterase reserves progressively and create a susceptibility to small doses of tetraethyl pyrophosphate or vice versa. Since CE is regenerated rather slowly in man, patients who have suffered parathion poisoning should not be permitted to experience further possible exposures to this compound until it has been established that CE blood levels have returned to normal. Parathion and other phosphate insecticides are not locally irritating, but they produce local cholinergic effects. There has been no chronic or cumulative action other than that on CE as previously described. Dangerous parathion residues have not been detected on food crops sprayed at the proper stage before harvest.

Very truly yours,
AMERICAN CYANAMID COMPANY
D. O. Hamblin, M.D.
Medical Director

MINNEAPOLIS SURGICAL SOCIETY

(Continued from Page 1033)

that Dr. Knight's efforts to accomplish this will prove fruitful.

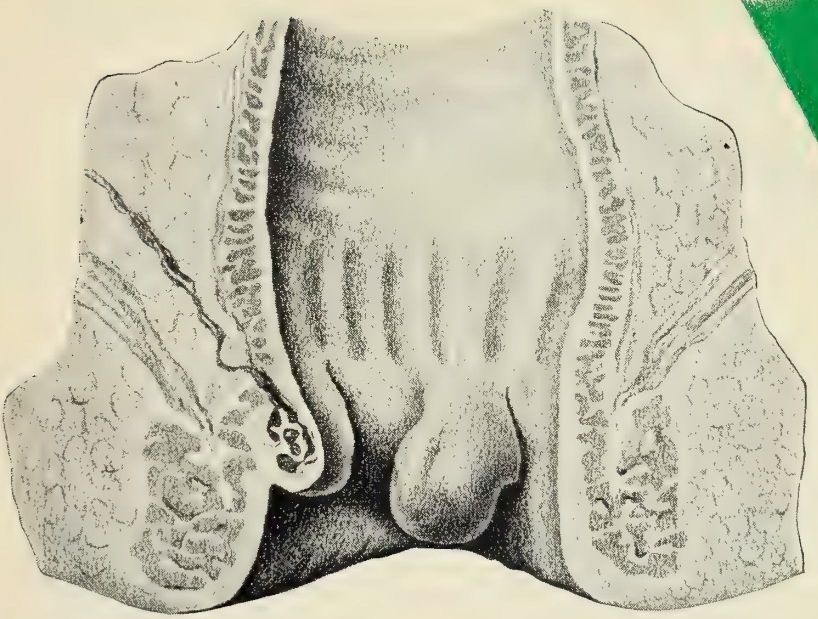
With regard to Dr. Jensen's question concerning profuse capillary bleeding with respiratory acidosis, I might state that we have not made this observation. However, as I stated earlier, we have been able to avoid any serious respiratory acidosis by using mechanical ventilation of the lungs during prolonged intrathoracic operations.

Finally, with regard to Dr. Dennis's questions, I would like to say that we have had no difficulty whatsoever from motion of the lungs using the Crafoord or the Mautz type of mechanical insufflation. With the gentle insufflation pressures used, it is a simple matter to pack the lung out of the way with a moist gauze swab. At intervals during the operation the pressure of the swab is released, and atelectatic portions of the lung are allowed to reexpand. As Dr. Dennis says, we have made some continuous tracings of the oxygen saturation of the blood, using an improved form of the Milliken oxymeter devised by Dr. B. J. Miller of our laboratory. We found little practical use for such continuous recording during the operation but we did learn something, as Dr. Dennis suggests, concerning the induction phase and also concerning the changes which occur in the immediate postoperative period. Because of a momentary period of rather marked unsaturation of blood with oxygen which occurs when sodium pentothal is used to induce anesthesia before introduction of the intratracheal tube, we have discontinued this practice. We now routinely insert the intratracheal tube under local anesthesia, and then with the tube in place we induce anesthesia with a small dose of sodium pentothal continuing with ether and oxygen. Using this procedure we have no period in which the arterial blood is inadequately saturated with oxygen. We have also learned that in the immediate postoperative period, when the patient begins to breath room air, the arterial oxygen saturation tends to decline. This has taught us that it is advisable in patients with poor respiratory reserve to continue the administration of oxygen in the immediate postoperative period until the patient has been returned to his bed and placed in an oxygen tent.

I appreciate the honor of having been invited to speak before the Minneapolis Surgical Society. It has been a great pleasure to be here.

The meeting adjourned.

WILLIAM H. RUCKER, M.D., *Recorder*



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Woman's Auxiliary

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Mrs. L. R. Scherer Legislative Chairman

All members of the Woman's Auxiliary to the Minnesota State Medical Association are urged to vote in the November elections. Auxiliary members, as individuals, should support and work for individual candidates.

For information about any candidate, write to Mrs. L. Raymond Scherer, 1930 Irving Avenue South, Minneapolis.

Also of help in keeping Auxiliary members informed will be the radio programs soon to be released by the American Medical Association.

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These are but a few of the problems which our screening survey experiences in communities and hospitals pose for us and for the medical profession generally. Meeting them directly and fully is the best assurance of effective tuberculosis control.—Robert J. Anderson, M.D., *Journal-Lancet,* April, 1950.

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In Memoriam

CHARLES ANTHONY REED

Dr. Charles A. Reed, well known orthopedist of Minneapolis, died August 22, 1950, at Eitel Hospital. He was seventy-eight years of age.

Dr. Reed was born February 2, 1872, at Hastings, Minnesota. He received his medical degree from the University of Minnesota Medical School in 1898. He first practiced medicine at Kalispell, Montana, and in 1903 and 1904 studied orthopedic surgery in Germany. He began practicing medicine in Minneapolis in 1909. In 1920, he helped organize the Nicollet Clinic and became associated with the staff of Eitel Hospital. He held an appointment as associate clinical professor of orthopedic surgery at the University of Minnesota Medical School and was assistant chief surgeon at the Shriner's Hospital for Crippled Children in Minneapolis.

During World War I, Dr. Reed served as a major with Base Hospital 26 in France. He was a member of the American College of Surgeons and a fellow of the American Academy of Orthopedic Surgeons. He was a member of the Hennepin County Medical Society, the Minnesota State Medical Association, and the American Medical Association.

Dr. Reed's wife, the former June Clarke Dickey of Minneapolis, died in 1947. They were married in 1916. He is survived by a stepdaughter, Mrs. S. B. Marantz.

MARK E. RYAN

Dr. Mark E. Ryan of Saint Paul, Minnesota, died following a coronary attack on August 16, 1950. He was sixty years of age.

Dr. Ryan was born at Delafield, Wisconsin, May 4, 1890. He attended school at Oconomowoc, Wisconsin, and obtained a B.S. degree from the University of Wisconsin in 1918. He attended medical school at the University of Wisconsin and at the University of Minnesota, graduating from the latter in 1921. He interned at Cleveland General Hospital in 1921 and began practice in Saint Paul with his brother, Dr. John J. Ryan, in 1922.

Dr. Ryan was a member of the Ramsey County Medical Society, the Minnesota State Medical Association and the American Medical Association. He had been a member of the Ancker Hospital staff for many years and had been active in medical, religious and civic circles in Saint Paul.

Dr. Ryan is survived by his wife, Isabel Perry Ryan; four sons, Mark E., James P., Lawrence P., and Paul W.; a daughter, Sister Mary of St. Mark of the House of Good Shepherd; two brothers, Dr. John J., of Saint Paul, and Dr. William, of Duluth.

The continued responsibility for the care of a chronically sick person adds immeasurably to the education of a physician. It requires maturity to be able to recognize limitations, to avoid becoming angry because the patient does not get well, to avoid becoming discouraged or discouraging, and to continue to wish to help within the limits of one's ability.—JOHN ROMANO, M.D., *J.A.M.A.*, June 3, 1950.

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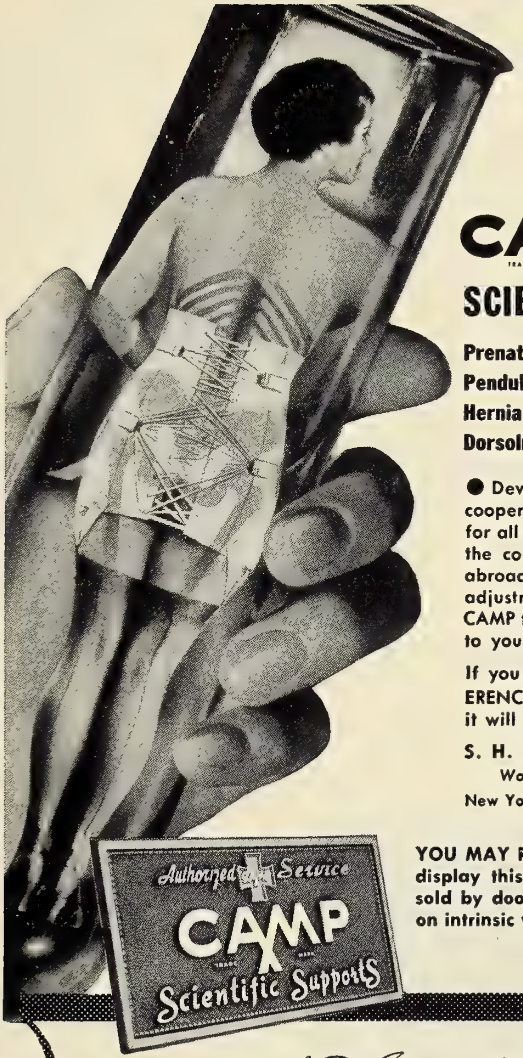

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✦ Reports and Announcements ✦

OMAHA MID-WEST CLINICAL SOCIETY

The Omaha Mid-West Clinical Society will hold its eighteenth annual assembly at Hotel Paxton, Omaha, Nebraska, October 23 to 27, inclusive.

The general program plan for 1950 will be much the same as in previous years. Distinguished guest speakers who are eminent in their particular specialty fields will present addresses, clinics and question-and-answer periods; members of the society will present lectures, panel discussions and scientific exhibits; a guest panel on the antibiotics has been scheduled for Friday morning. Scientific motion pictures will open the daily program, and technical exhibits will again be on display.

The annual sessions of the Omaha Mid-West Clinical Society have received a Class A rating from the American Academy of General Practice. This means that Academy members who attend the sessions will receive credit toward the fifty hours of *formal* postgraduate study required of them every three years.

Further information may be obtained by writing to the executive office of the Society, 1031 Medical Arts Building, Omaha, Nebraska.

INSTITUTE OF INDUSTRIAL HEALTH

The Institute of Industrial Health of the University of Cincinnati will accept applications for a limited number of fellowships which are being offered to qualified candidates who wish to pursue a graduate course of instruction which will qualify them for the practice of industrial medicine. Candidates who complete satisfactorily the course of study will be awarded the degree Doctor of Industrial Medicine. Any registered physician, who is a graduate of a Class A medical school and who has completed satisfactorily two years of residency (including internship) in a hospital accredited by the American Medical Association may apply for a fellowship in the Institute of Industrial Health. The course of instruction consists of a two-year period of intense preliminary training in the basic phases of industrial medicine followed by one year of practical experience under adequate supervision in industry. During the first two years, the stipends for the fellowships vary from $2,100 to $3,000. In the third year the candidate will be compensated for his service by the industry in which he is completing his training. Requests for additional information should be addressed to the Institute of Industrial Medicine, College of Medicine, Cincinnati 19, Ohio.

UROLOGY AWARD

The American Urological Association offers an annual award of $1000 (first prize of $500, second prize $300 and third prize $200) for essays on the result of some

(Continued on Page 1042)

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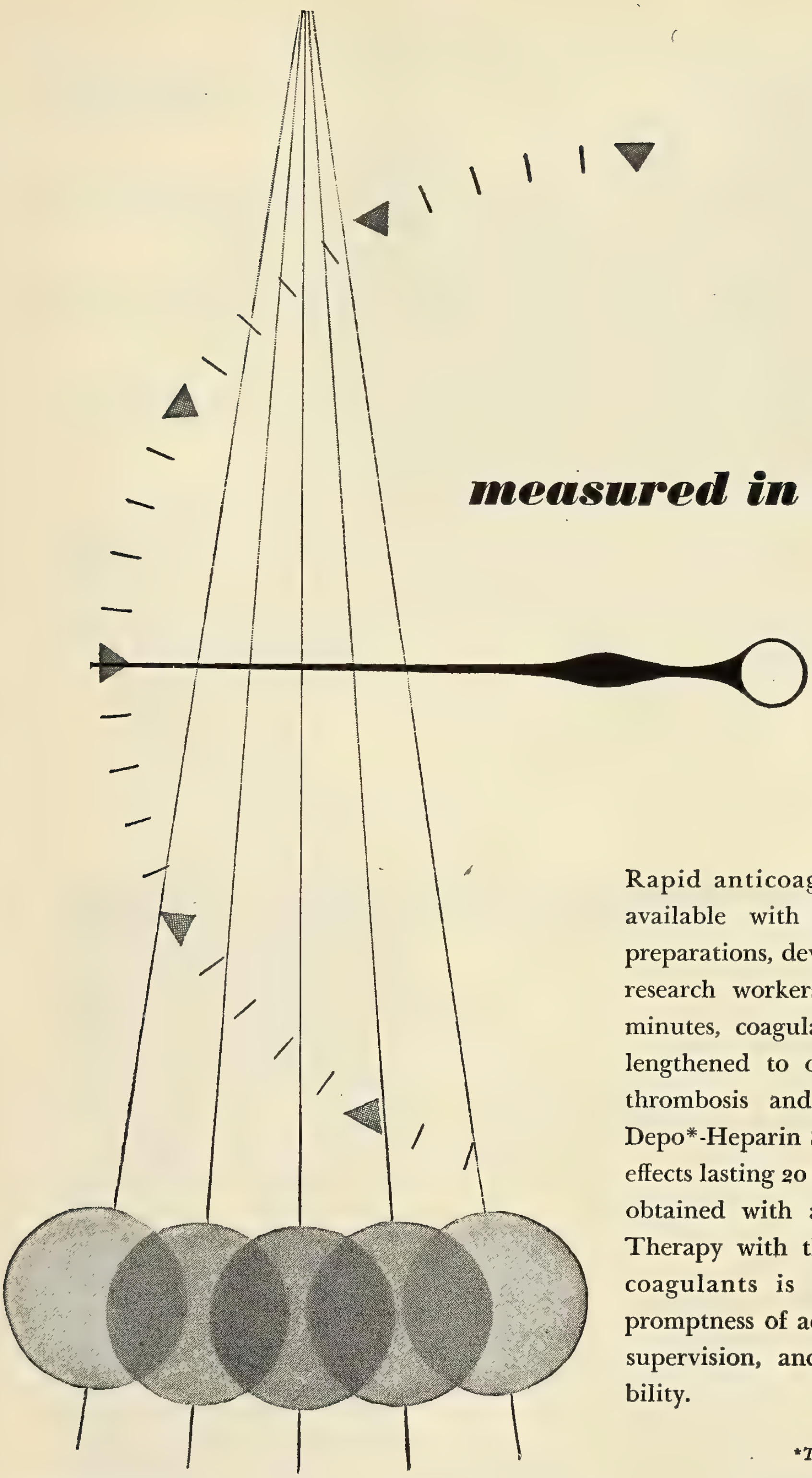

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UROLOGY AWARD

(Continued from Page 1040)

clinical or laboratory research in urology. Competition shall be limited to urologists who have been in such specific practice for not more than five years and to men in training to become urologists.

The first prize essay will appear on the program of the forthcoming meeting of the American Urological Association, to be held at the Palmer House, Chicago, Illinois, May 21 to 24, 1951.

For full particulars write the secretary, Dr. Charles H. de T. Shivers, Boardwalk National Arcade Building, Atlantic City, New Jersey. Essays must be in his hands before February 10, 1951.

POSTGRADUATE CONFERENCE IN OTOLARYNGOLOGY

The annual Postgraduate Conference in Otolaryngology at the State University of Iowa, will be conducted November 27 to December 2 at the University Hospitals, Iowa City, Iowa. Further information may be obtained from the Director of Medical Postgraduate Studies, Medical Laboratory Building, Iowa City, Iowa.

RADIOLOGICAL SOCIETY OF NORTH AMERICA

The Radiological Society of North America will hold its thirty-sixth annual meeting in Chicago, December 10 through 15. Headquarters will be at the Palmer House where scientific and technical exhibits and sessions will be held. All members of the profession are welcome and are invited to attend.

CONTINUATION COURSES

Diseases of the Chest.—A continuation course for physicians in diseases of the chest will be presented at the University of Minnesota Center for Continuation Study, October 26 to 28. The course is intended for general physicians and is presented with the sponsorship and financial support of the Minnesota Trudeau Society. Distinguished visiting physicians who will participate as faculty members of the course include Dr. O. A. Sander, associate in medicine, Marquette University Medical School; Dr. John H. Skavlem, president of the American Trudeau Society, and associate professor of medicine, Cincinnati University Medical School; and Dr. James J. Waring, professor and chief of medicine, University of Colorado. The remainder of the faculty for the course will be made up of members of the staff of the University of Minnesota, the Mayo Foundation, and the Minnesota Trudeau Society.

Child Psychiatry.—A continuation course in child psychiatry for pediatricians and physicians will be presented at the Center for Continuation Study, November 27 to December 1. Dr. Ralph D. Rabinovitch and Dr. John Waterman will participate as lecturers and group discus-

(Continued on Page 1044)

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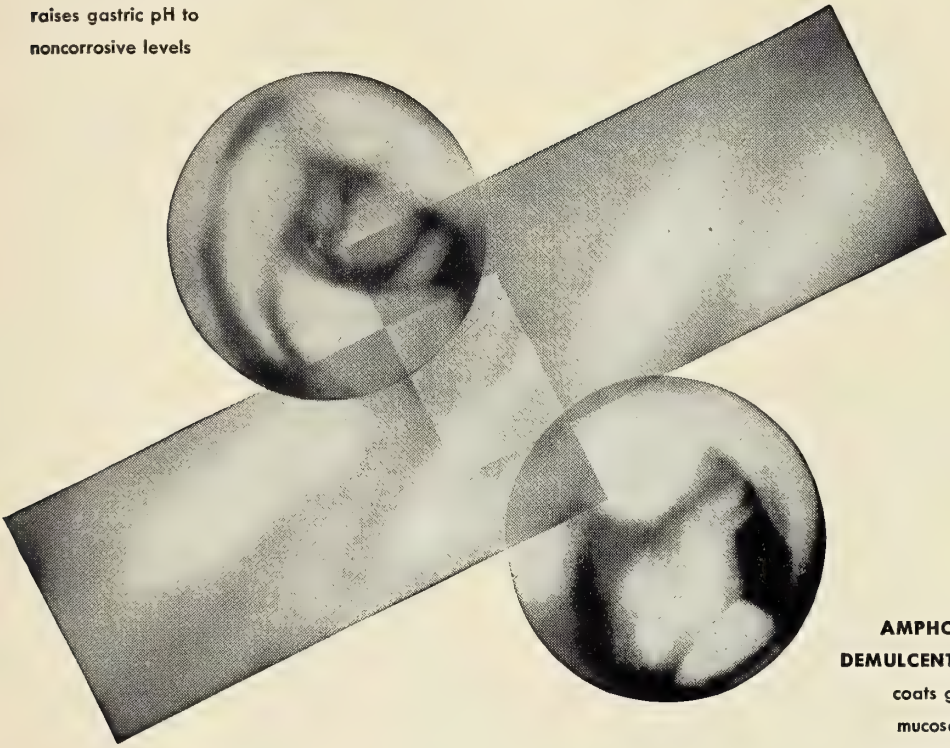

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CONTINUATION COURSES

(Continued from Page 1042)

sion leaders. Dr. Reynold A. Jensen, head of the Child Psychiatry Service of the University of Minnesota, is in charge of the arrangements for the course and will also act as lecturer and group discussion leader.

Poliomyelitis.—A continuation course on poliomyelitis will be presented at the University of Minnesota Center for Continuation Study on November 9 to 11, with the sponsorship of the Elizabeth Kenny Institute. The course is intended for doctors of medicine engaged in general practice and for such specialists as pediatricians, physiatrists, orthopedic surgeons, and neurologists. Dr. Harold A. Sofield, associate professor of the Department of Bone and Joint Surgery, Northwestern University Medical School, will be the visiting faculty member for the course.

NORTHERN MINNESOTA MEDICAL ASSOCIATION

Approximately fifty physicians attended the two-day annual meeting of the Northern Minnesota Medical Association in Bemidji on September 8 and 9. The meeting was held under the direction of Dr. W. J. DeWeese, president of the group during the past year.

Officers elected during the business session include the following: Dr. L. W. Johnsrud, Chisholm, president; Dr. G. A. Sather, Fosston, re-elected vice president; Dr. C. L. Oppegaard, Crookston, re-elected secretary-treasurer.

SOUTHERN MINNESOTA MEDICAL ASSOCIATION

At the annual meeting of the Southern Minnesota Medical Association in Mankato on September 11, Dr. R. F. Hedin, Red Wing, was elected president of the organization. He succeeds Dr. Warren E. Wilson of Northfield.

Other officers named at the meeting are Dr. C. W. Rumpf, Faribault, first vice president; Dr. H. G. Nilson, Mankato, second vice president, and Dr. W. A. Merritt, Rochester, secretary-treasurer.

The 1951 meeting of the association will be held in Rochester.

MINNESOTA SOCIETY OF NEUROLOGY AND PSYCHIATRY

The Minnesota Society of Neurology and Psychiatry held its regular meeting in Saint Paul on September 12. Dr. J. C. Michael, Minneapolis, presented a discussion of "Antabus Therapy in Alcoholism," and Dr. Harold F. Buchstein, Minneapolis, spoke on "Prefrontal Lobotomy in the Relief of Pain."

PENNINGTON COUNTY SOCIETY

In the first election of officers conducted by the recently organized Pennington County Medical Society, at a meeting in Thief River Falls on August 23, Dr. O. F. Mellby was elected president of the group. Other officers elected include Dr. Harold C. Johnson, vice president, and Dr. George T. Van Rooy, secretary-treasurer. All are of Thief River Falls.

(Continued on Page 1046)

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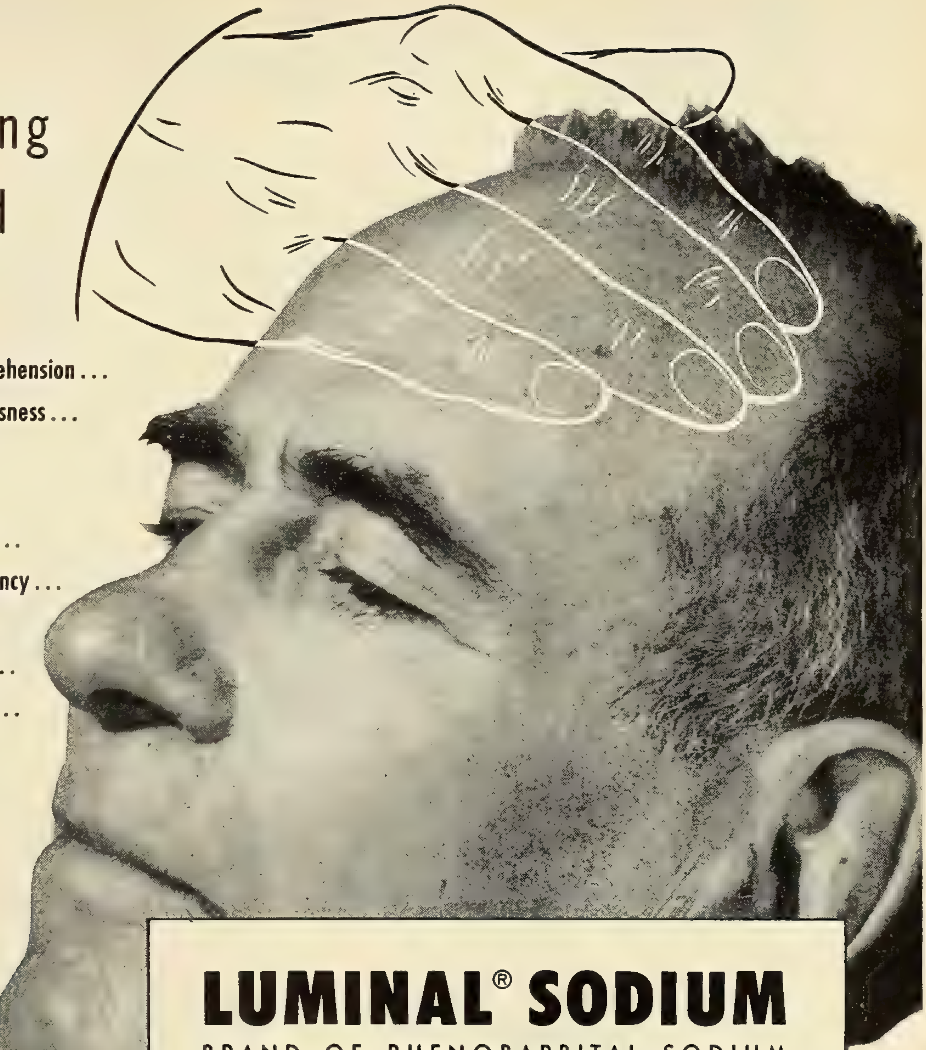

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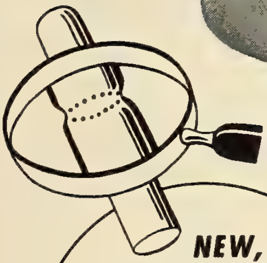

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During the scientific part of the meeting Dr. A. E. Culmer of Grand Forks, North Dakota, presented a paper on the operative treatment of fractures.

RED RIVER VALLEY SOCIETY

The Red River Valley Medical Society held a meeting in Crookston on July 22. Principal speaker at the afternoon session was Dr. Richard E. Reiley, Minneapolis, who discussed fractures and fracture problems as the orthopedist sees them referred by the general practitioner.

A feature of the evening session was a discussion of the Minnesota medical educational campaign by Lyle A. Limond, field secretary of the Minnesota State Medical Association.

WASHINGTON COUNTY SOCIETY

At the regular monthly meeting of the Washington County Medical Society held at Stillwater in September, Dr. Emmerson Ward of Rochester spoke on "Cortisone in Therapeutics." Visitors attending the meeting included Dr. D. A. Burlingame, Saint Paul, Dr. Campbell of New Richmond, Dr. Cornwall of Andover, and Dr. Bourget of Hudson, Wisconsin.

CEREBRAL PALSY CLINIC

The Cerebral Palsy Council, Inc., of Minnesota, 279 Rice Street, Saint Paul, is endeavoring to develop a cerebral palsy registry. Its purpose is to acquaint families of these persons with groups in various vicinities who are studying the problem. Registry cards were sent out last spring to secretaries of all county medical societies. Secretaries are urged to return these cards with necessary information on each as quickly as possible.

SALT WATER ORALLY FOR SHOCK

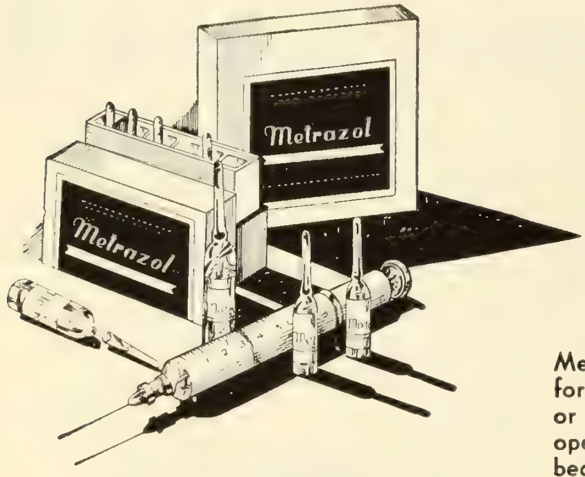
A group of leading American surgeons has advised the Public Health Service, Federal Security Agency, that salt water taken by mouth, in a vast majority of cases, is as effective as blood plasma in the emergency treatment of shock from serious burns and other injuries.

The recommending surgeons are members of the Surgery Study Section, an advisory body to the National Institutes of Health and to the Surgeon General of the Public Health Service.

In general terms, the treatment calls for approximately one level teaspoonful of table salt and one-half teaspoonful of baking soda for each quart of water. A number of quarts are required each day. The only limitations on the amount consumed is the ability of the patient to consume the saline solution. Since great thirst accompanies serious burn injury, it has been found that patients will voluntarily consume a sufficient amount of the solution, which is quite palatable. No other drinking fluid is permitted in the first few days following injury.

In releasing the recommendation, Surgeon General Leonard A. Scheele said:

"Salt water offers an easy, practical method for the treatment of shock which follows serious burns and other injuries. It is particularly important in any period of large scale disaster. Unless the patient is disoriented, is in acute collapse or is among the very small percentage who become nauseated by drinking large quantities of the salt solution, the sodium chloride formula will be effective when administered by mouth."



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◆ Of General Interest ◆

Dr. John F. Pohl, Minneapolis orthopedic surgeon, is the author of a recently published book entitled "Cerebral Palsy." The book, which is said to be the first complete medical text on cerebral palsy, was published by the Bruce Publishing Company, Saint Paul and Minneapolis.

* * *

Dr. Titus C. Kreuzer, of Marshall, who recently returned from a several months' tour of Europe, writes that there was a considerable difference of opinion in England concerning the national medical service. "It was very definite," he writes, "that the working class seemed to be in favor of the 'free medical care,' as they called it, because it didn't cost them anything. However, the white-collar class was very bitter about the plan, stating that they had always been able to care for their own needs and could continue to do so. They said they did not want to get into the queue but wanted service when they needed it."

Dr. Kreuzer adds that "in Germany, Italy and France it was very evident that a preponderance of the lay people, as well as physicians, wanted to get to America if possible."

* * *

Dr. Conrad I. Karleen, formerly associated with Dr. Carl W. Waldron of Minneapolis, has announced the removal of his office to 402 Medical Arts Building, Minneapolis. His practice is limited to plastic and reconstructive surgery.

* * *

Dr. William H. Inglis has joined the staff of the Dr. R. J. Cairns clinic in Redwood Falls. Dr. Inglis was graduated from the University of Minnesota Medical School in 1949.

* * *

Red Lake Falls acquired a new physician in August when **Dr. Allan McKaig** arrived from Birmingham, Alabama, to be associated in practice with Dr. Lester N. Dale. A graduate of the University of Syracuse, Dr. McKaig spent two years in the armed services and then practiced at Birmingham for two years. Dr. McKaig and Dr. Dale will practice in newly remodeled offices in a building which Dr. Dale purchased in August.

* * *

Dr. Kenath Herrick Sponsel has moved his offices to 321 Medical Arts Building, Minneapolis, to continue the practice of the late Dr. Vernon L. Hart. Dr. Sponsel's practice will be limited to orthopedic and traumatic surgery.

* * *

Dr. Valentine O'Malley has opened offices for the practice of internal medicine at 541 Lowry Medical Arts Building, Saint Paul.

Since 1948 the **American Diabetes Association** has conducted and financed a yearly detection drive through its special Diabetes Detection Committee. It is estimated that there are a million unknown cases of diabetes in the country. Early detection means better control and more normal lives for those so afflicted. Last year about 7,500 unknown diabetics were uncovered during Diabetes Week. It is expected that Diabetes Week this year, scheduled for November 12 through 18, will be even more successful.

The American Diabetes Association has prepared a special article designed for use in company publications and those of labor organizations, with the aim of facilitating acceptance of the campaign by employes. Copies of the article may be obtained from the office of the American Diabetes Association, 11 West 42nd Street, New York, N. Y.

The campaign is a program of the medical profession, approved by the AMA, and needs the support of the community. Last year, through the cooperation of the local county medical society and the Chamber of Commerce in Virginia, Minnesota, 9,791 residents of the city were tested and at least fifty new cases of diabetes were discovered.

* * *

Dr. Gordon R. Kamman, Saint Paul, spoke on "Psychosomatic Medicine" at the monthly meeting of the Lyon-Lincoln Medical Society at Marshall on September 19.

* * *

Dr. Harry W. Christianson and **Dr. Robert J. Tenner,** Minneapolis, have announced their association with Dr. Lloyd F. Sherman, who was formerly associated with Dr. Harry E. Bacon of Philadelphia in the practice of proctology.

* * *

The American Dermatological Association is offering a prize of $300 for the best essay submitted on original work not previously published relative to some fundamental aspect of dermatology or syphilology. Manuscripts, double spaced, should be submitted in triplicate not later than February 1, 1951, to Dr. Louis A. Brunsting, Secretary, American Dermatological Association, 102 Second Avenue S.W., Rochester, Minnesota.

* * *

Dr. John S. Hamlon has become a member of the staff of the state hospital at Fergus Falls. A graduate of the University of Minnesota Medical School, Dr. Hamlon served for five years in the Army in Africa and Europe. Following his release from the Army he practiced at St. Charles until his move to Fergus Falls in August.

(Continued on Page 1050)

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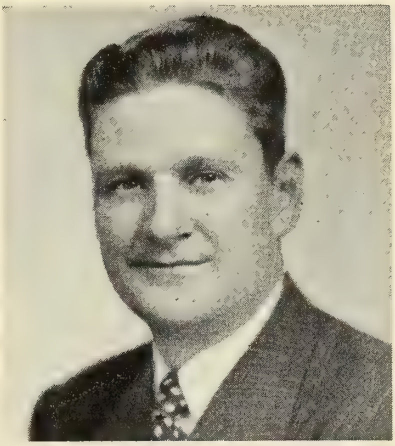

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It was announced on August 24 that **Dr. Joseph C. Belshe** planned to leave Northfield by September 15 to become associated in practice with Dr. Fred B. Riegel at St. Croix Falls, Wisconsin. Dr. Belshe has been associated in practice in Northfield with Dr. Robert F. Mears.

* * *

In August the Clearwater Clinic of Bagley purchased a clinic building at Gonvick and announced that a physician would be secured to replace **Dr. Norman F. Stone,** of Gonvick, who had received orders to report for duty in the Navy. It was expected that Dr. Stone would leave Gonvick about November 1.

* * *

Dr. G. T. Schimelpfenig and **Dr. B. H. Simons,** Chaska, attended a meeting in Shakopee on August 24 at which plans for a tri-county community hospital project were discussed.

* * *

The engagement of **Dr. Jack Gordon Olsen,** formerly of Edina, and Miss Nancy Elizabeth Harris, Durham, North Carolina, was announced on August 27. The wedding is scheduled for October 27. Dr. Olsen is a graduate of the University of Minnesota Medical School.

* * *

The following statement on prophylaxis against subacute bacterial endocarditis was approved at the annual meeting of the **American Council on Rheumatic Fever** on June 12:

Following dental extractions and removal of tonsils and adenoids, bacteria are frequently present in the blood stream for short periods of time. In rheumatic individuals or in patients with congenital heart disease these bacteria may lodge in the heart valves and cause bacterial endocarditis. Although a variety of bacteria cause this disease, the majority of cases are due to alpha streptococci (Streptococcus viridans). Alpha streptococci are usually resistant to sulfa drugs. Penicillin is, therefore, recommended for prophylaxis.

1. Except in emergencies, operative procedures in rheumatic individuals should be deferred until there is no clinical evidence of rheumatic activity and laboratory tests indicate that the rheumatic process is subsiding.

2. Patients should be free of upper respiratory infection.

3. Minimum dosage of penicillin: (a) 300,000 units of aqueous penicillin injected intramuscularly thirty to sixty minutes before extraction or operation; (b) 300 000 units of procaine penicillin in oil injected intramuscularly at the same time in a different site.

Penicillin prophylaxis is not necessary for the extraction of deciduous incisors or bicuspids unless infection of the gum is present. It should be used for the extractions of deciduous molars, all permanent teeth and for tonsillectomy and adenoidectomy. In most instances it is best to extract one tooth at a time; multiple extractions should be avoided. In cases of extensive gum infection or severe root infections (apical abscesses) it is advisable to give several doses of penicillin, starting the day before

(Continued on Page 1052)

THROAT SPECIALISTS REPORT
ON 30-DAY TEST OF CAMEL SMOKERS...

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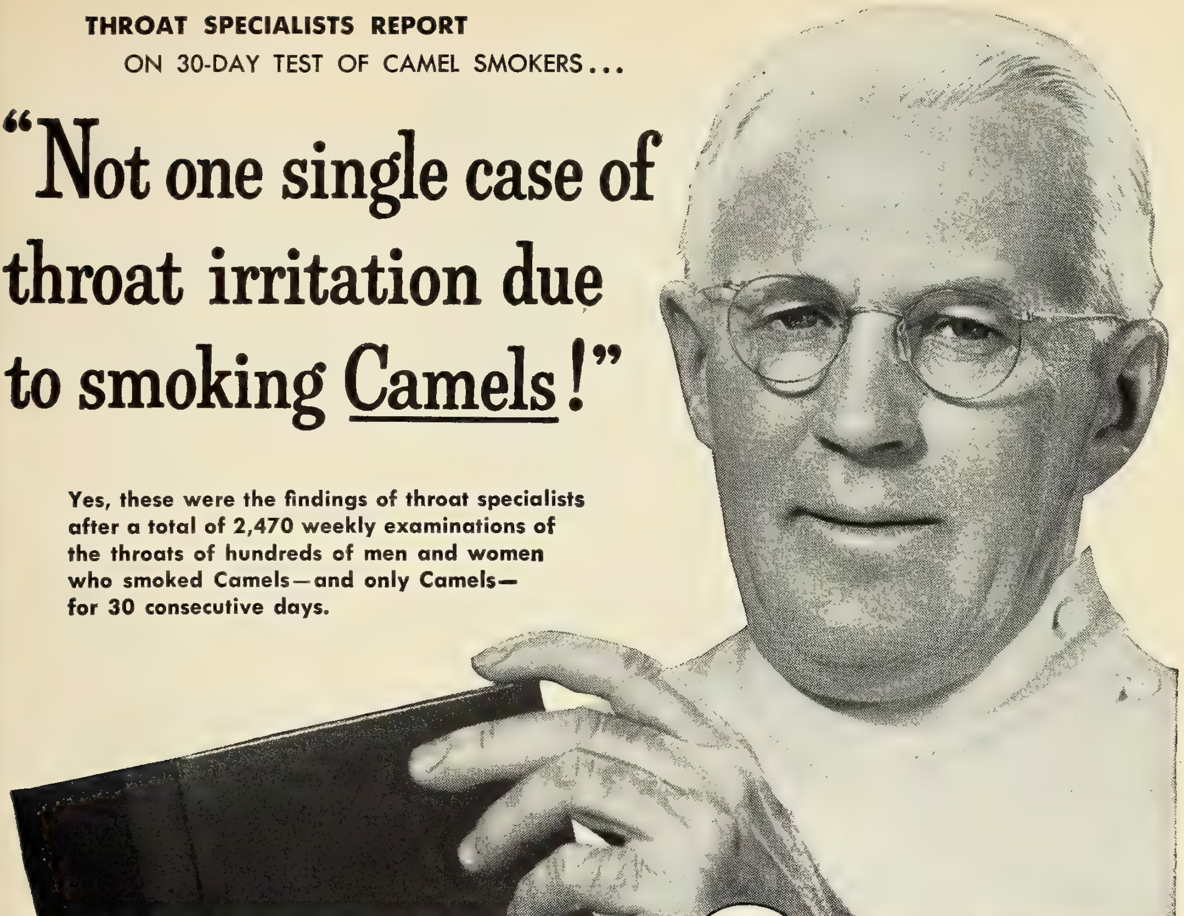

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Surgery of Colon and Rectum, one week, starting October 16, November 27.
Breast and Thyroid Surgery, one week, starting October 2.
Thoracic Surgery, one week, starting October 9.
Gall-Bladder Surgery, ten hours, starting October 23.
Fractures and Traumatic Surgery, two weeks, starting October 9.
GYNECOLOGY—Intensive Course, two weeks, starting October 23.
Vaginal Approach to Pelvic Surgery, one week, starting November 6.
OBSTETRICS—Intensive Course, two weeks, starting November 6.
MEDICINE—Intensive General Course, two weeks, starting October 2.
Gastro-enterology, two weeks, starting October 16.
Gastroscopy, two weeks, starting October 23.
Electrocardiography and Heart Disease, four weeks, starting October 2.
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(Continued from Page 1050)

operation and continuing one or two days thereafter.

Women with rheumatic or congenital heart disease should receive penicillin prophylaxis at the time of delivery. It is also recommended for patients requiring gastrointestinal surgery.

* * *

Dr. J. J. Ahlfs, Caledonia, has announced that **Dr. Hildegard J. Virnig,** formerly of Mount Morris, Illinois, has become associated in practice with him. A graduate of the University of Minnesota, Dr. Virnig has done postgraduate work in pediatrics and gynecology.

* * *

A chest clinic was conducted in Austin on August 28 by **Dr. Karl H. Pfuetze,** director of Mineral Springs Sanatorium, Cannon Falls.

* * *

At a meeting of the South Dakota Medical Society in Spearfish, South Dakota, during the middle of August, **Dr. William H. Bickel,** Rochester, presented a paper entitled "Acute Fracture Complications."

* * *

Dr. and Mrs. L. R. Parson, Elbow Lake, were honored on the occasion of their thirtieth wedding anniversary at a dinner party given by friends at Sandy Point on August 31.

* * *

Dr. Roger F. Hartwich, who has practiced in Winona for more than a year, joined the staff of the Winona Clinic on September 5.

* * *

Dr. J. Arthur Myers, professor of public health and preventive medicine at the University of Minnesota, left for Rome on September 12 to speak at the first International Congress on Diseases of the Chest. He also was scheduled to lecture at the Hebrew Medical School in Jerusalem.

* * *

Dr. Malcolm J. Lester, formerly of Fairmont, has taken over the general practice of Dr. C. F. Medlin in Truman. Ill health forced Dr. Medlin to retire from active practice.

Dr. Lester, a graduate of the University of Louisville, interned at Swedish Hospital, Minneapolis, then was associated in practice with Dr. Harold Coulter in Madelia. Before moving to Truman he was practicing with Dr. R. S. Hunt and Dr. R. C. Hunt in Fairmont.

* * *

After practicing in Jackson for a year, **Dr. Curtis M. Johnson** left during the first week of September to begin practice elsewhere. Before leaving Jackson, Dr. Johnson stated that his plans were somewhat uncertain because of the changing military situation.

* * *

The offices of **Dr. F. W. Behmler** and **Dr. R. A. Rossberg** in Morris have been completely remodeled and enlarged. The changes were made to provide accommodations for Dr. J. C. Kooda, who, it was

(Continued on Page 1054)

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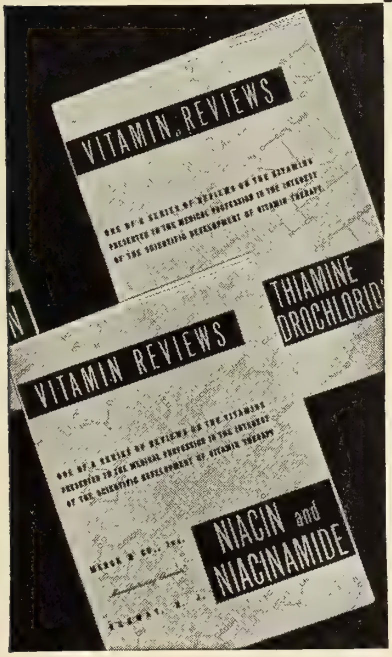
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Partial Index of Contents

- → **Factors that produce avitaminosis.**
- → **Signs and symptoms of deficiency.**
- → **Daily requirements and dosages.**
- → **Distribution in foods.**
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(Continued from Page 1052)

announced, was moving from Eagle Bend to practice in Morris.

* * *

It was announced on August 31 that **Dr. Harold J. Stoen** was planning to open offices for the practice of medicine in Anoka about September 18. A graduate of Rush Medical School in 1934, Dr. Stoen interned at Fresno General Hospital, California, and then completed a one-year residency in surgery at the Home Hospital, Lafayette, Indiana. After three years as a staff member of the U. S. Marine Hospital at Cleveland, Ohio, he began general practice in Lafayette in 1940. With the exception of four years with the Army Air Force during World War II, he practiced continually at Lafayette until 1950.

* * *

Dr. Robert Nash Evert and Miss Doreen Alma Nerlund were married on September 29 in the Como Park Lutheran Church, Saint Paul. Dr. John Evert, the brother of the groom, was best man. The bridegroom is the son of Mrs. John Evert and the late Dr. John Evert of Glendive, Montana.

* * *

Dr. Lawrence J. Swanson has opened offices for the practice of medicine at 950 South Robert Street, West Saint Paul. Dr. Swanson was graduated from the University of Minnesota Medical School in 1946.

* * *

Dr. Alvin Erickson of the Long Prairie Clinic spent two weeks in September at the Cook County Hospital, Chicago, taking postgraduate courses.

* * *

Dr. F. R. Heilman and **Dr. W. E. Herrell,** Rochester, have been named to the editorial board of a new medical journal, "Antibiotics," which will make its first appearance in January. Dr. Heilman is with the bacteriology division of the Mayo Clinic, and Dr. Herrell is with the diagnostic divisions of general medicine and surgery.

* * *

Dr. Frank J. Hill, Minneapolis health commissioner, has been named to the founders group of the American Board of Preventive Medicine and Public Health.

* * *

Dr. Mark Anderson, Jr., Rochester, a fellow in surgery in the Mayo Foundation, reported for active duty with the Navy on September 5. He was the first fellow from the foundation to be called into active service.

* * *

Dr. Evelyn E. Hartman, formerly with the department of baby clinics in Finland, has joined the staff of the Minneapolis city health department to serve as maternal and child health physician.

* * *

Dr. Howard Kaliher left Pelican Rapids late in September to move to Tillamook, Oregon, where he had accepted an appointment to the staff of the Tillamook County Hospital.

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1. *Withering, W.:* An account of the Foxglove, London, 1785.
2. *Rimmerman, A. B.:* Digilanid and the Therapy of Congestive Heart Disease, Am. J. M. Sc. *209:* 33-41 (Jan.) 1945.

Literature giving further details about Digilanid and Physician's Trial Supply are available on request.

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Among the speakers at the annual meeting of the Idaho State Medical Association at Sun Valley, Idaho, during the first week of September were **Dr. John S. Lundy** and **Dr. Robert Kierland.**

* * *

Dr. Mitrofan Smorszczok, Polish displaced person who was granted his medical license in Minnesota this summer, began practice in Monticello in mid-August. He is associated with Dr. William E. Hart of Monticello. It was Dr. Smorszczok's arrival in Minnesota in 1948 that started a controversy about the state rules barring foreign-trained physicians from licensure.

* * *

Dr. Leonard M. Ellertson, a graduate of the University of Iowa Medical School, has become associated in practice with Dr. C. E. J. Nelson and Dr. O. A. E. Erdal in Albert Lea. Dr. Ellertson has served in the Navy and has been a resident physician at the Ball Memorial Hospital, Muncie, Indiana.

* * *

Dr. and Mrs. J. F. Weir, Rochester, left during the first week of September for a two-month trip to Europe. In addition to sightseeing, Dr. Weir, who is head of a section in medicine at the Mayo Clinic, attended the First International Congress of Internal Medicine at the University of Paris during the middle of September.

Dr. Hector M. Brown, medical director of the Walker Hospital at Walker, has opened a branch office in Backus for the practice of medicine. The office is open on Saturday mornings.

* * *

After forty-six years of medical practice, forty-two of which were spent in Northfield, **Dr. I. F. Seeley** retired from active practice and moved to Tucson, Arizona, on August 27.

On the day of departure a reception was held at the Northfield Masonic Hall in Dr. Seeley's honor. Representatives from surrounding cities were present to pay tribute to Dr. Seeley for his years of service. A few days earlier, on August 24, Dr. and Mrs. Seeley were honored at a dinner given by Northfield physicians and the Northfield Hospital board and nursing staff.

A graduate of the University of Iowa in 1904, Dr. Seeley began his practice in Elysian. After a year there he spent two years as a physician with construction companies building the Milwaukee Railroad through the Rocky Mountains. He settled in Northfield and opened his practice there in 1908. For the past two years Dr. Stanley T. Kucera has been associated in practice with him.

* * *

Dr. J. W. Janes, Rochester, spoke on "Common Bone Malignancies" at a meeting of the Iowa State Medical Society at Carroll, Iowa, on September 7.

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Dr. Willis E. Lemon, Rochester, a fellow in radiology in the Mayo Foundation for the past three and one-half years, joined the x-ray department of the Chesapeake and Ohio Railroad Hospital in Clifton Forge, Virginia, on September 12. Dr. Lemon is the son of Dr. and Mrs. Willis S. Lemon of Rochester.

* * *

Dr. Ernest M. Hammes, Jr., Saint Paul, participated in the postgraduate course for general practitioners held at Charles City, Iowa, September 18, through the presentation of a paper entitled "Common Neuroses and Their Management." The course was presented under the auspices of the Iowa State Medical Society.

* * *

Dr. Gordon M. Martin, Rochester, was named fifth vice president of the American Congress of Physical Medicine at the organization's twenty-eighth annual meeting in Boston during the last week of August.

* * *

Dr. Leon L. Adcock and his wife, **Madeline S. Adcock,** have decided to dedicate themselves to the work of medical missions. They will establish a dispensary at Berekum on the Gold Coast of Africa under the direction of the Medical Mission Sisters. Until recently they served as resident physicians at St. Joseph's Hospital, Saint Paul.

* * *

Dr. H. L. Smith, Rochester, presented a paper entitled "The Movements and Sounds of Heart Valves in Various Laboratory Animals" at the International Cardiologic Congress in Paris on September 9.

* * *

The Golden Anniversary Dinner of the *American Journal of Nursing* was held on October 10, 1950, at the Waldorf-Astoria Hotel, New York.

Otto L. Wiese, editor and publisher of *McCall's Magazine,* acted as toastmaster. Serving on the Committee of Sponsors for the occasion were: Helen Hayes; Dr. Elmer L. Henderson; Senators Irving M. Ives and Herbert H. Lehman; Henry R. Luce, editor of *Time, Life* and *Fortune;* General George C. Marshall, and Mary Martin, star of South Pacific. Mrs. Eleanor Roosevelt addressed the guests on the subject, "The Nurse and the World of Tomorrow."

* * *

The Health Insurance Council, made up of the leading trade associations in the life and casualty insurance fields, has reported great gains in voluntary health insurance in 1949.

At the year's end 44 per cent of the entire population was covered by hospital insurance and nearly 60 per cent of the employed civilian population was protected against loss of income because of disability.

The total number of persons covered under voluntary accident and health insurance plans for hospital expense increased in 1949 to 66,044,000 from 60,995,000 a year earlier, a gain of 8 per cent. Those covered for surgical expense increased to 41,143,000 from 34,060,000, an increase of 21 per cent.

Coverage for medical expense increased from 12,895,000 to 16,862,000, a gain of 31 per cent.

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The following men trained in the Division of Dermatology at the University of Minnesota passed recent examinations of the American Board of Dermatology and Syphilology: **Robert W. Goltz, Melvin Grais, Stanley Huff, Harold Hurst,** and **Wm. Macauley.** Dr. Henry E. Michelson, Minneapolis, is president of the American Board of Dermatology and Syphilology.

* * *

HOSPITAL NEWS

Officers were elected at staff meetings recently of the following hospitals:

St. Michael's Hospital, Sauk Centre.—Dr. J. F. DuBois, Sr., Sauk Centre, was elected president of the medical staff of St. Michael's Hospital at a meeting on August 29. Other officers include Dr. A. H. Zachman, Melrose, vice president, and Dr. John C. Grant, Sauk Centre, secretary-treasurer. The new hospital, a fifty-bed institution, was formerly opened on September 1.

St. Francis Hospital, Shakopee.— Dr. M. B. Hebeisen, Chaska, was named chief-of-staff of St. Francis Hospital at a meeting of the hospital staff on August 25. Dr. J. E. Ponterio, Shakopee, was named vice-chief-of-staff, and Dr. P. J. Stahler, Jordan, secretary-treasurer.

Windom Hospital, Windom.—Dr. L. L. Sogge, Windom, has been named the first president of the newly formed medical staff organization of Windom

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Hospital. Dr. John A. Watkins, Windom, has been made secretary of the group.

Northwestern Hospital, Minneapolis.—Dr. Claude J. Ehrenberg is the new president of the medical staff of Northwestern Hospital. Other officers include Dr. Hewitt B. Hannah, vice president; Dr. Norman E. Rud, secretary-treasurer; Dr. Robert E. Priest, chief of surgery; Dr. Harold E. Miller, chief of medicine; Dr. William P. Sadler, chief of obstetrics and gynecology, and Dr. Donald H. Daniel, chief of general practice. In addition to the officers, members of the executive committee include Dr. Albert T. Hays, with Dr. Cyrus Hansen, radiologist, and Dr. Stanley V. Lofsness, pathologist.

* * *

A new thirty-five bed **convalescent hospital** was opened on September 1 at 2200 Park Avenue, Minneapolis. Manager and director of the hospital is Mr. T. W. Donohue. Dr. Archa E. Wilcox is medical advisor to the hospital.

* * *

An appropriation of $30,000 to maintain a surgical research unit at **Ancker Hospital,** Saint Paul, was approved for 1951 by the Ramsey County Welfare Board and the Saint Paul City Council. The laboratory, which will concentrate primarily on developing heart operations, will be built by private subscription and maintained by the county and city.

* * *

A campaign to raise $168,000 for the construction of a new fifty-bed **St. Francis Hospital** in Shakopee was launched early in September. Getting the campaign off to a good start, a total of $12,000 was pledged by eight physicians in the area.

It is estimated that the completed hospital, fully equipped, will cost about $675,000. The Sisters of St. Francis, who will operate the hospital, will provide $250,000, and a grant from the federal government will provide an additional $303,750.

* * *

Dr. B. W. Mandelstam, administrator of **Mount Sinai Hospital,** being completed in Minneapolis, announced on September 2 that Twin Cities physicians were invited to apply for part-time staff positions at the hospital. He also announced three full-time appointments: Dr. S. Steven Barron, pathologist; Dr. Jack Friedman, radiologist, and Dr. Irving Greenfield, anesthesiologist.

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BLUE CROSS-BLUE SHIELD NEWS

More than $5,000 a day including Saturdays, Sundays and holidays is being paid to licensed and registered doctors of medicine by the Minnesota Medical Service, Inc., for services rendered to Blue Shield subscribers. An average of $5,439.65 was paid each of the 243 days between January 1 and August 31, 1950. Each of the 171 work days in the first eight months of 1950 show $7,730.03 going to doctors of medicine for services rendered Blue Shield subscribers. Doctors' services totaling 40,679 were paid during this eight-month period as compared with 21,698, an increase of 19,981 services or 49.1 per cent over the same period of 1949. Excluding Saturdays, Sundays and holidays, the number of checks made ready for mailing each day was 121.

Every effort is being made by the Blue Shield to process doctors' Medical Service Reports promptly so that the physicians will receive their checks in the shortest possible time.

For Your Information

At the end of August, there were 2,691 Blue Shield-participating doctors of medicine in Minnesota. The Blue Shield office is attempting to contact all nonparticipating doctors of medicine, however it would be appreciated if doctors who are at the present time nonparticipating would contact the Blue Shield office relative to enrolling as participating doctors. Also, if you know a colleague who does not participate why not mention it to him for the more participating physicians, the stronger the plan.

To help speed up the processing of Blue Shield cases it would be appreciated if full information could be listed on the reports when first submitted. This information would include the subscriber's group and contract number, the patient's birth date, the diagnosis, type of services rendered the subscriber and other pertinent data. Any information omitted from the report form only tends to delay the processing of that case.

The Minnesota Blue Shield office is receiving an increasing number of requests from licensed and registered doctors of medicine in Minnesota for Blue Shield contracts for themselves and their families. It is regretted that at the present time it is the ruling of the Board of Directors of the Minnesota Blue Shield that physicians cannot apply for and receive Blue Shield contracts. Briefly, the reason is that due to medical ethics physicians tend to render each other medical care on a courtesy basis and to allow licensed and registered doctors of medicine to have a Blue Shield contract would mean that they were using their own organization, Blue Shield, for reimbursement of a service that is ordinarily not reimbursed. Blue Cross, however, is available to doctors in the State of Minnesota and if any physician should desire a Blue Cross contract for himself and his family it is suggested that the request be sent to the Enrollment Department of Minnesota Blue Cross and Blue Shield.

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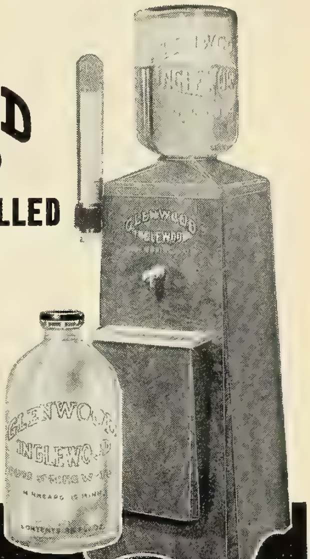

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

PRACTICAL GYNECOLOGY. Walter J. Reich, M.D., F.A.C.S., F.I.C.S. Attending Gynecologist, Cook County Hospital; Professor of Gynecology, Cook County Graduate School of Medicine; Attending Gynecologist, Fantus Clinics of the Cook County Hospital; Assistant Professor of Gynecology, Chicago Medical School; Attending Gynecologist and Obstetrician, Grant Hospital; Attending Gynecologist, Fox River Tuberculosis Sanatorium; Consulting Gynecologist, Hazelcrest General Hospital; and Mitchell J. Nechtow, M.D., Associate Attending Gynecologist, Cook County Hospital and the Fantus Gynecologic Clinic; Assistant Clinical Professor of Gynecology, Cook County Graduate School; Associate in Gynecology and Obstetrics, Chicago Medical School; Attending Gynecologist and Obstetrician, Norwegian-American Hospital. 449 pages. Illus. Price $10.00, cloth. Philadelphia: J. B. Lippincott Co., 1950.

RENAL DISEASES. Second Edition. E. T. Bell, M.D., Professor of Pathology in the University of Minnesota, Minneapolis. 448 pages. Illus. Price $8.00, cloth. Philadelphia: Lea & Febiger Co., 1950.

THE PROSTATE GLAND. Herbert R. Kenyon, M.D., Associate Clinical Professor, Department of Urology, New York University, Bellevue Medical Center. 194 pages. Illus. Price $2.95, cloth. New York: Random House, 1950.

CEREBRAL PALSY. By John F. Pohl, M.D., 224 pages. Illus. Price $5.00. Saint Paul: Bruce Publishing Company, 1950.

For quite a number of years a great deal of interest has been focused on cerebral palsy, especially in children. We have witnessed the organization of many groups whose main interest lies in this condition, which claims about half a million victims in the United States. Rehabilitation centers and special schools for handicapped children have sprung up, and many other groups dealing with crippled children have shown increased interest in cerebral palsy, all of which proves the recognition of the importance of this condition and the necessity of using all possible methods for its relief. For these reasons, the appearance of this book is particularly timely and important.

The first chapter states concisely the medical problem. The pathologic anatomy, the different types of cerebral palsy are described, also the diagnostic problems and the evaluation of the mentality. The next chapter goes into the general plan of treatment—muscular relaxation, training of voluntary muscle control and building of developmental patterns. Portions of this chapter deal briefly with drugs, braces, surgical manipulations and outright surgery (brain, cord, nerves, muscles, tendons and skeleton). One chapter is devoted to the important principle of relaxation, while four chapters are needed for neuromuscular training of the various parts of the body. Here we find specific methods to help the patient in gaining voluntary control of muscles by establishing muscle-consciousness, by securing muscle function and co-ordination. The directions are described in detail for the various muscle groups, always complemented by good, instructive photographs. Chapter VIII takes up the training for developmental patterns, taking as an example the progress of such patterns in the normal infant (rolling over, creeping, et cetera) with walking as its ultimate goal (Chapter IX). The last two chapters, which are rather extensive, deal with occupational therapy and speech. The importance of the occupational therapy is very obvious, not only as a means for strengthening and increasing the control of muscles, but as these are "accomplishments for which the child can see a definite purpose, and because they are of immediate usefulness, will attract his co-operation in treatment." The variety of work exercises is remarkable, and these exercises are presented in excellent, clear form. This part includes an important portion on teaching the palsied child to eat by himself and the special eating utensils which are very helpful for the badly handicaped patient. Much space is given to teaching and correcting the speech. This part of the book is most explicit and complete in the discussion of the various defects encountered in these cases and the therapy needed to correct them. As in all the other chapters, many instructive photographs are a helpful feature.

This small volume of 224 pages (which includes an index of 11 pages) is remarkably complete and instructive. The division of the material is good, and each chapter is worked out to such an extent that it gives full information and instruction to anyone interested in this field as a whole or any part of it. The 131 illustrations increase the value of this book considerably. It should be studied most thoroughly by all workers in this field of occupational therapy and speech teachers, but it should also be of great value to physicians and medical students, especially in the branches of pediatrics, orthopedics and neurology. The palsied child owes thanks to the author for the help it will receive through better information and training of his teachers by this work.

R.R.

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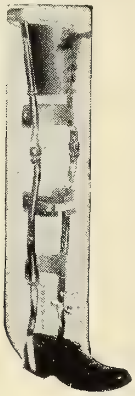

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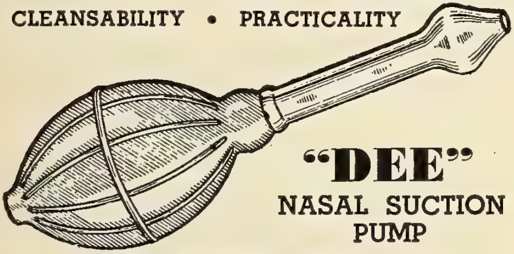

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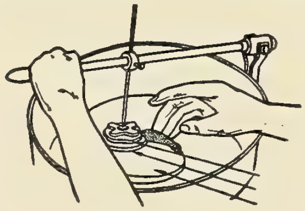

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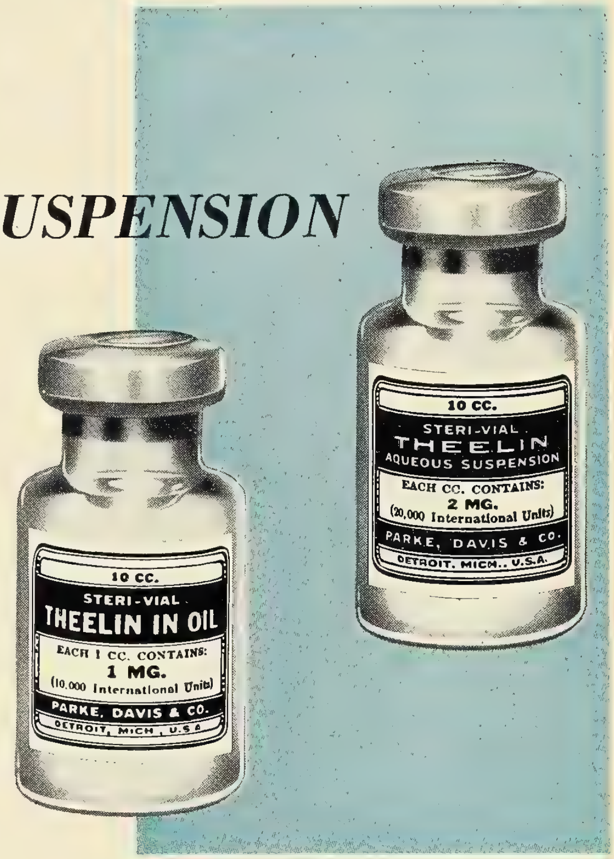
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Contents of Minnesota Medicine copyrighted by Minnesota State Medical Association, 1950

Entered at the Post Office in Saint Paul as second class mail matter. Accepted for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized July 13, 1918.

MINNESOTA MEDICINE

OFFICIAL JOURNAL OF THE MINNESOTA STATE MEDICAL ASSOCIATION

Published by the Association under the direction of its Editing and Publishing Committee

Office of Minnesota State Medical Association,
493 Lowry Medical Arts Bldg., Saint Paul 2, Minnesota.

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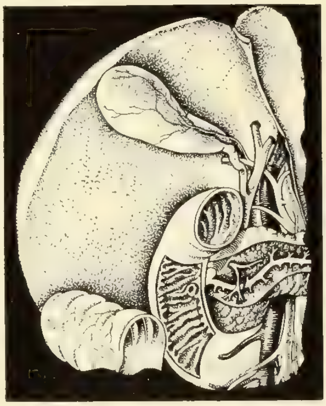

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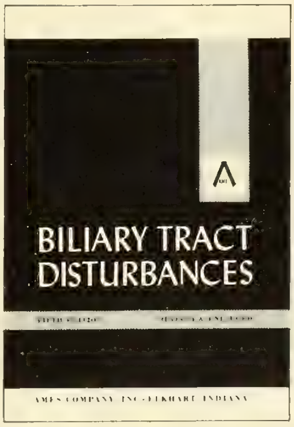

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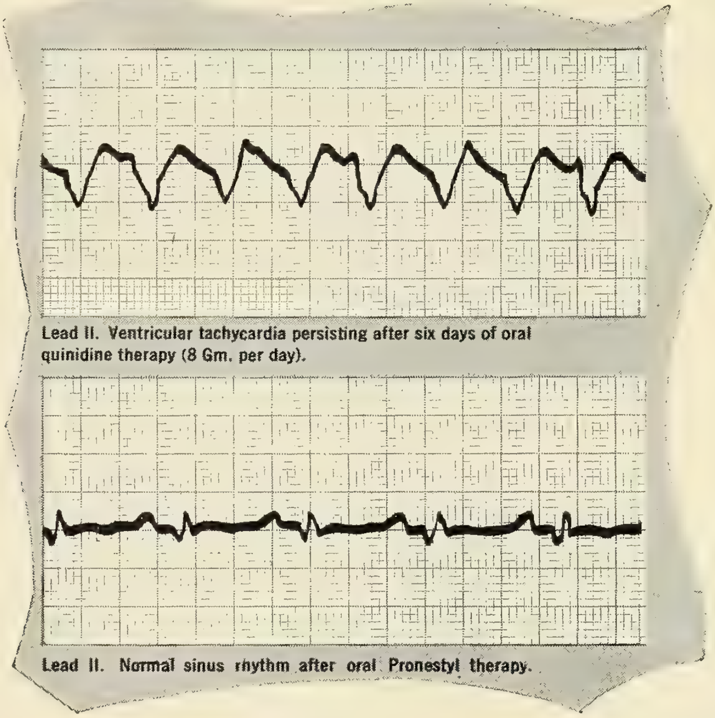

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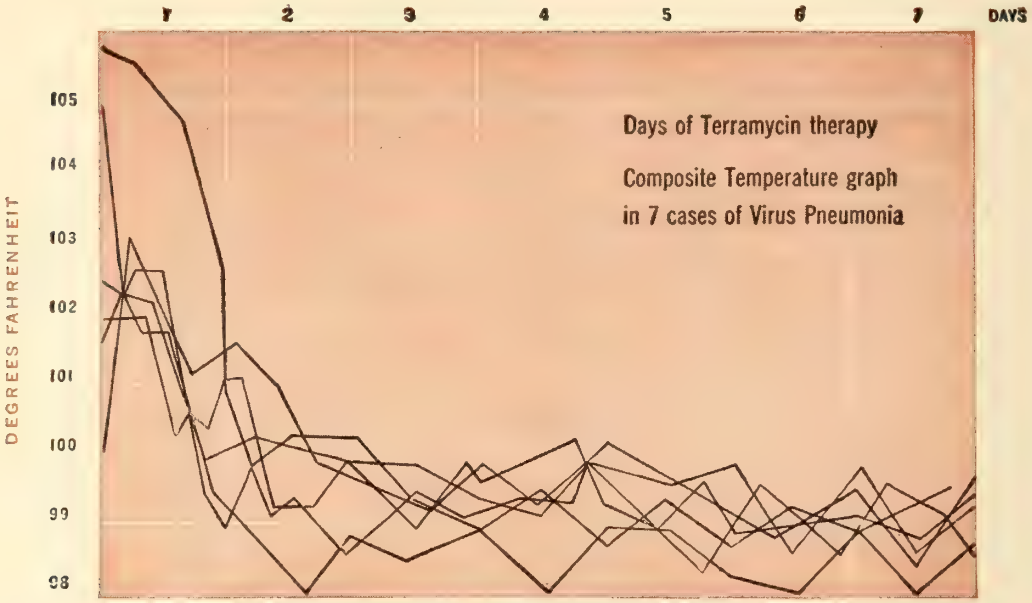

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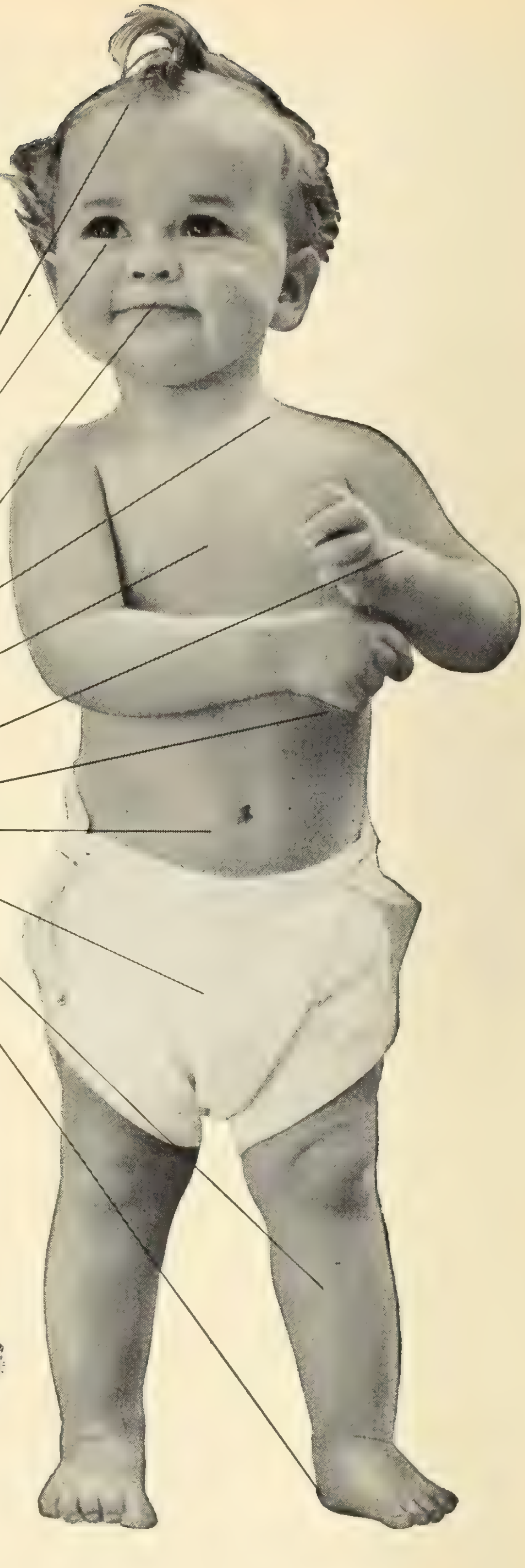

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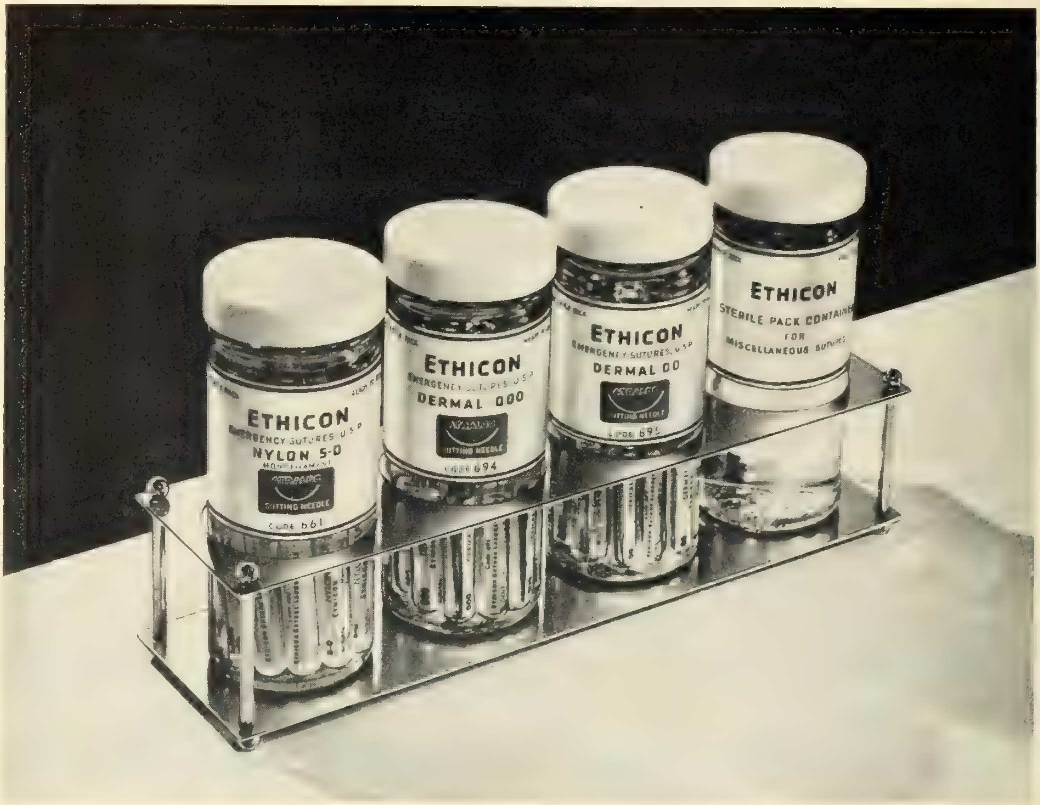
**Proc. Soc. Exp. Biol. and Med.*, 1934, 32, 241-245; *N. Y. State Journ. Med.*, Vol. 35, 6-1-35, No. 11, 590-592; *Laryngoscope*, Feb. 1935, Vol. XLV, No. 2, 149-154; *Laryngoscope*, Jan. 1937, Vol. XLVII, No. 1, 58-60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(1) Thorn, G.W.; Quinby, J.T., and Marshall, C., Jr., Ann. Int. Med. 18:913 (June) 1943.

(2) Orent-Keiles, E., and Hallman, L. F., Circular No. 827, United States Department of Agriculture, Bureau of Human Nutrition and Home Economics, Agricultural Research Administration, Dec., 1949.

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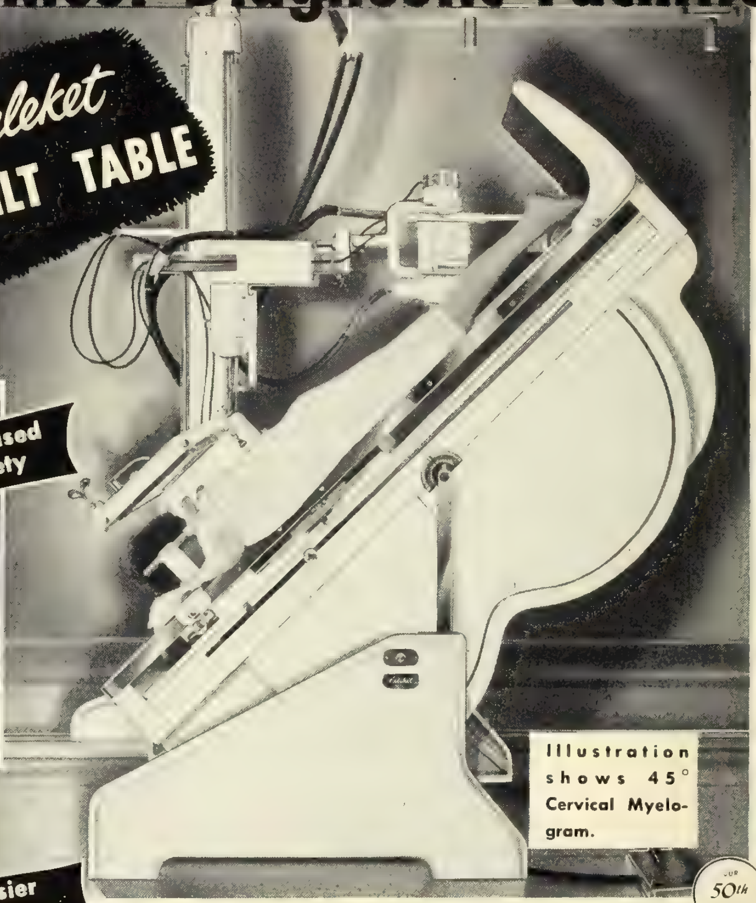

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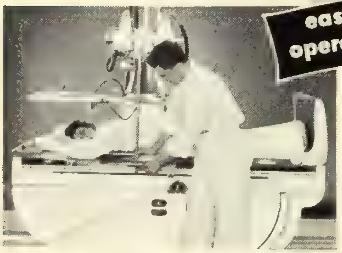

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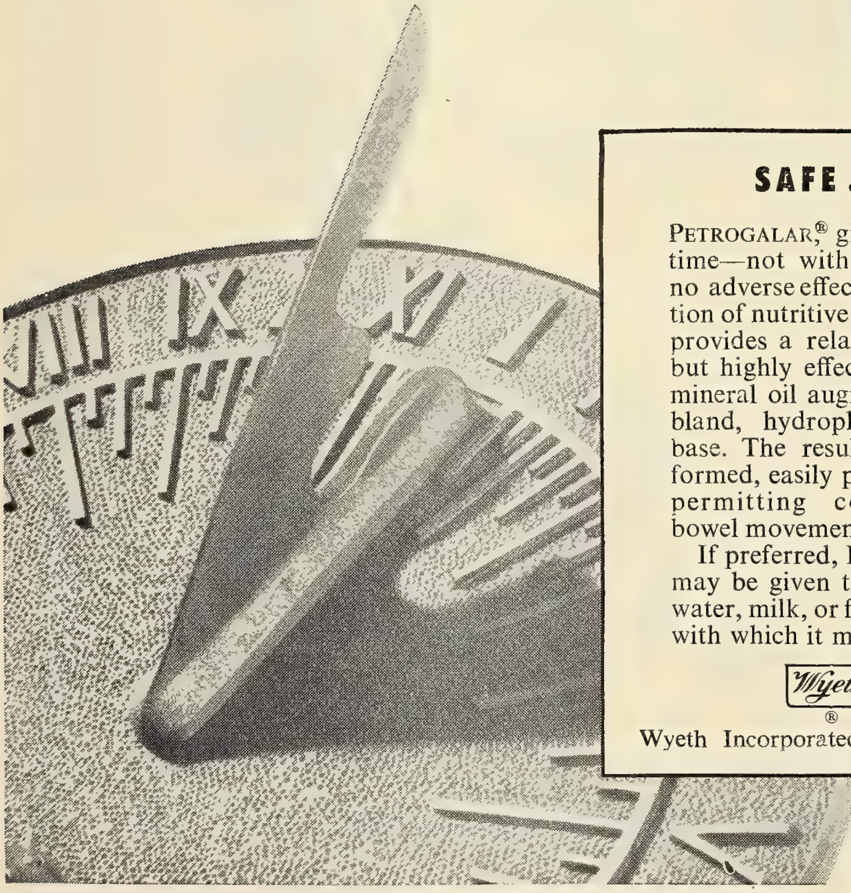

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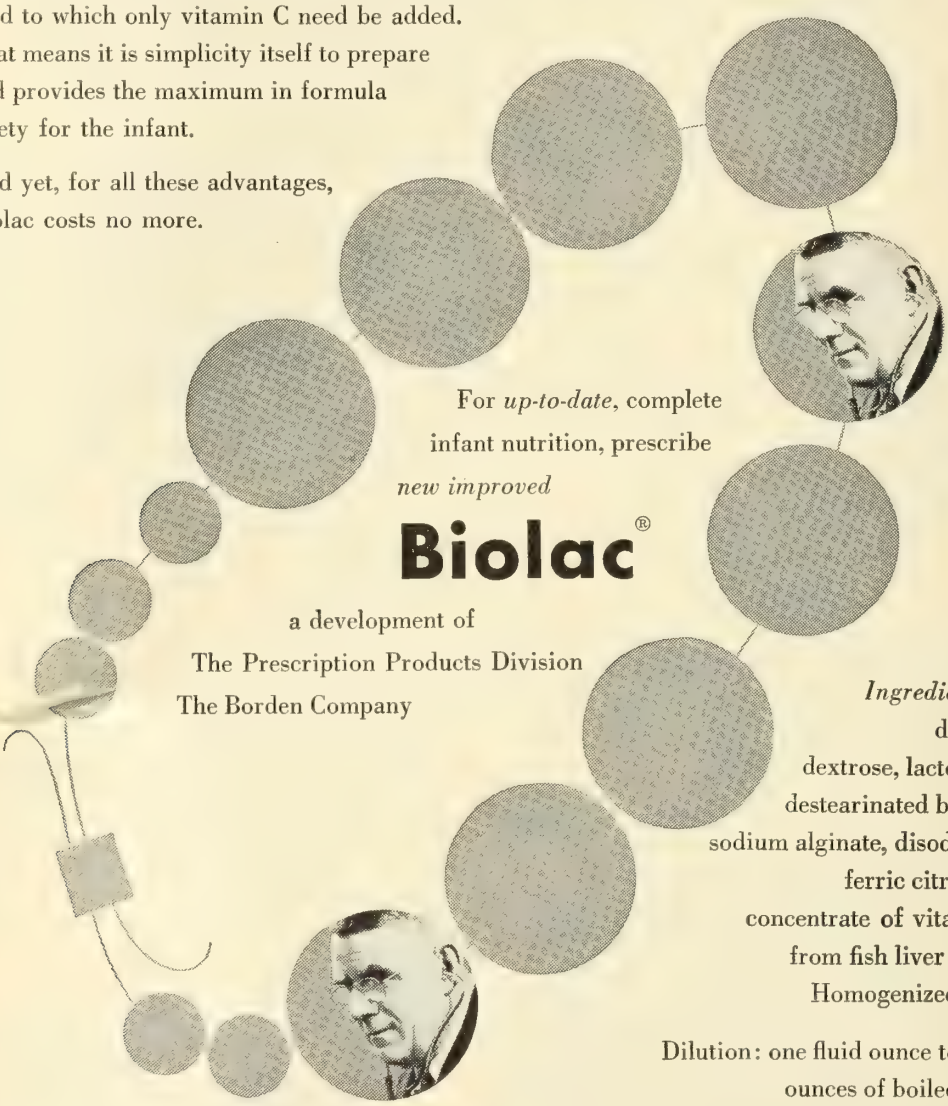

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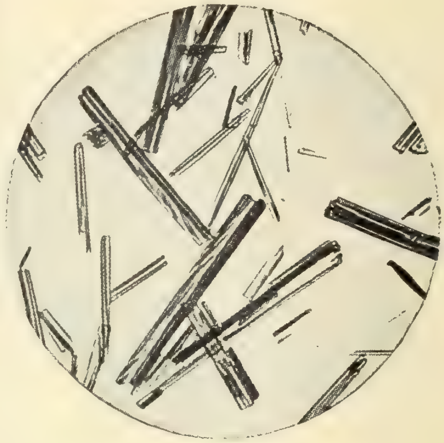

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 33 **NOVEMBER, 1950** **No. 11**

THE RADIOACTIVE EFFECTS OF ATOMIC WEAPONS

ASHER A. WHITE, M.D.

Minneapolis, Minnesota

IN discussing the physiologic effects of radiation, consideration must be given to the manner in which radioactivity is encountered. Man has for many years had intimate and reasonably accurate knowledge of the radioactivity emanating from x-ray machines and from radium. More recently work with cyclotrons has given rise to radioactive forms of many of the common elements. During the late war, in connection with the operation of the plutonium producing piles at Richland, Washington, and Oak Ridge, Tennessee, immense amounts of radioactivity were encountered which required enormous work in planning and building for protection of personnel against such radioactivity. It was not, however, until the explosion of the first atomic bomb in July, 1945, with the subsequent explosions over Japan in August of 1945, that radioactivity became important in civil defense planning.

In present planning various factors must be given consideration. Several atomic bombs have been exploded in the air and one bomb has been exploded under water. The effects of the air or water bursts are entirely different, both practically and in relation to human contact with radioactivity. Atomic bomb explosions in air are a very poor and ineffective way of utilizing radioactivity for destruction. A much more effective way of such utilization was found at Bikini in the underwater explosion. In this instance the intense heat of the bomb explosion, totaling several million degrees centigrade, turned many thousand tons of sea water into steam, in which the enormous radioactivity of the fission products was trapped and rained back to earth as the radioactive steam condensed. These radioactive fission products fell out over an area roughly five miles in diameter and so contaminated the target ships that all had ultimately to be sunk. The presence of radioactive sludge at the bottom of Bikini Lagoon continues to make that lagoon uninhabitable for humans. The A.E.C. has reported that almost all biological organisms living in the lagoon are radioactive. It is considered, however, by civil defense planners that such water explosions are an inefficient use of the energies available in time of war, and that we need not therefore be concerned with this particular type of explosion.

The term, "radiological warfare" is one which has occasionally been used and one for which some definition should be supplied. It refers to the concept that radioactive substances might be used to contaminate the air, the water, the food or the ground upon which people live. Water soluble substances might be put into municipal water systems, radioactive substances might be sprayed by planes over selected areas of land, and other means could be used to disseminate such radioactive substances. Here again the phenomenologist concedes that such use of radioactivity will be inefficient in terms of destruction, and therefore advises that radioactivity encountered through this means will be unlikely. We will therefore confine ourselves in this discussion to the effects of an atomic bomb exploded in the air above a given area.

Presented at the short course on Civil Defense, Minneapolis, Minnesota, August 31, 1950.

The explosion of the bomb in the air above a target gives rise to four successive waves of destructive activity. The first wave travels with the speed of light and includes the components of the electromagnetic spectrum such as light, heat, x-rays and gamma rays. The second wave travels somewhat more slowly and contains myriads of atomic particles and fission products, including neutrons. Third comes the shock wave, which travels with the speed of sound, and fourth the blast wave following immediately after the shock wave. At Hiroshima and Nagasaki the dangerously radioactive fission products rose into the stratosphere harmlessly. Biological damage came from the heat, the ultraviolet energies, the gamma rays and neutrons which were liberated at the instant of explosion but which instantly dissipate and are lost. Relatively very little radioactivity is left upon the ground after such an explosion. The injuries produced by the heat, light and gamma rays are produced at the instant of dissemination and before the blast effect can strike.

One must also consider the areas over which biological effects can be produced. From the point immediately underneath the bomb or target center to one thousand yards in all directions is the zone in which almost all biological organisms will die of radioactive burns. The only animals remaining alive in this zone would be those who had been screened by some effective radiological screening substance such as concrete. In the zone next furthest out, from one thousand yards to 1,250 yards, the survivors of the Japanese blasts were relatively few and those who did survive showed maximum radiological effects. The third zone, from 1,250 to 1,500 meters, gave rise to far fewer deaths, but in most persons in this area the radiological burns were severe. In the area from 1,500 to 1,750 yards from target center, severe superficial burns were produced, but no immediate radiological effects were noticed, although many individuals suffered delayed effects. In the zone 1,750 yards to 2,000 yards, even these delayed effects were few, although many superficial burns were encountered.

In this connection the experience of the Japanese in Hiroshima and Nagasaki are our best examples. In the Japanese, the injuries produced were a composite of flash burns from heat and radiation burns. In addition to these effects many survivors experienced blast injuries. The manner of injuries can be well understood if one imagines that the place of bomb explosion a few hundred feet above the ground produces in effect a small sun. At that height the heat from this sun will be sufficient to burn severely those who are close enough to the center. In addition to the heat the ultraviolet light will produce a severe burn, and finally the rays of shorter wavelength such as x-rays and gamma rays will reach the body, penetrate directly through it, and cause injuries to most of the cells through which they pass. The individual thus receives his total injury all in a flash and may die immediately from the combined effects. If further away from target zero, he may die more slowly within the first day or two, or if the injury was mild enough, may survive to show the effects of internal damage of one kind or another as permanent late results. If the exposure were very light, the damage may heal with no sequelae whatever. It is not our purpose to consider the burn and blast effect, since these are older subjects and are more thoroughly understood.

TABLE I. RADIATION SENSITIVITY OF TISSUE IN DECREASING ORDER

a. Lymphocytes
b. Erythroblasts
c. Germinal epithelium of testis
d. Myeloblasts
e. Epithelium of intestinal crypts
f. Germinal cells of ovary
g. Basal layer of the skin
h. Connective tissue
i. Bone
j. Liver
k. Pancreas
l. Kidney
m. Nerve
n. Brain
o. Muscle

At the instant of explosion, gamma rays and neutrons are produced, which travel with infinite speed to the target which it is intended they destroy, and penetrate these targets as deeply as the energies which they carry allow. As the gamma rays and neutrons fly through the body they produce their damage by disrupting the various tiny atoms of which body cells are composed. In the course of passage of one neutron through the body, probably many thousands of atoms are disrupted. The amount of total body damage produced depends upon the total number of neutrons and gamma rays which penetrate the body and the degree of sensitiveness of the body. The degree of sensitiveness in turn varies with the species of animal, varies between different individuals of the same animal species, and varies greatly from one tissue to another. The most sensitive tissues in the animal organism are always those tissues which are in most active growth

TABLE II. RADIATION SENSITIVITY OF MAN AND ANIMALS. NUMBER OF ROENTGENS (r) REQUIRED TO KILL 50 PER CENT OF SUBJECTS

Fruit fly eggs	150 r
Guinea pig	200 r
Dog	325 r
Goat	350 r
Man	450 r
Mice	530 r
Rats	600 r
Rabbits	800 r
Bacteria	1,000-100,000 r

such as bone marrow, blood cells, sexual tissues and other tissues in decreasing order.

The dose of radioactivity received by any given individual varies as we have described with the distance from the blast and with the thickness of screening material between such individual and the blast.

Acute radiation sickness may take several forms, according to the severity of the exposure. The survivors in zone two will usually exhibit the fulminating form of the disease, which is characterized by the onset of nausea, vomiting, prostration and mild diarrhea within two to six hours after exposure and soon afterward of intractable diarrhea with delirium, tremors and finally death. In the early Japanese deaths there was very little evidence of external effect. Death occurred from the fifth to the tenth day. This fulminating type occurs in individuals who have received very large amounts of radiation. The hemorrhagic form of the disease occurs in those individuals who have been less hard hit with radiation. Vomiting, prostration and diarrhea occur early, lasting one or two days, and then there may be a period during which the individual seems well, lasting about five days, but this is followed by profound prostration, bloody diarrhea, and increasing fever. Bleeding into the skin and into the body orifices or cavities takes place and ulcers of mucuous membrane become more and more expansive. If the patient dies, it is usually in from three to six weeks after the exposure.

The third form of the disease is known as the pancytopenic, and is composed largely of patients in the hemorrhagic group who survive the six weeks period but continue to exhibit weakness, pallor and ulceration. Blood counts on these people show a severe diminution in all the formed blood elements. In those patients who are doomed to die from this form of the disease, loss of weight becomes more and more pronounced.

A most interesting phenomenon in connection with radiation sickness is the loss of hair from the scalp. It occurs equally in both sexes and appears about two weeks after the exposure. New hair of the same texture and color as the original hair grew in all individuals who survived.

Complications.—Acute radiation sickness in the Japanese was usually accompanied by severe blast and burn injuries, many persons dying from these injuries before the evidence of radiation sickness developed. Because of the skin and intestinal ulcers produced, bacterial infections were common, including bacterial invasion of the blood stream, pneumonia, lung abscesses and tuberculosis.

Sequelae.—Various late complications of acute radiation sickness seem possible, but as yet no extensive clinical experience with these has been obtainable in man. An extensive program of study of the Japanese survivors has been instituted in order to follow up these possibilities. If the human reacts like the experimental animal, genetic changes will be observed in the offspring of the Japanese victims but may not be observable for two, three, or more generations. Various experimental evidence indicates that malignant growths may be made to occur by heavy body radiation. A late development which has recently been found to occur in the Japanese victims is cataracts of the eyes.

Treatment.—No specific and curative treatment has yet appeared. Treatment in general depends upon rendering every possible form of support. One then hopes that the dose of radiation which the patient has received will not be sufficient to overwhelm his body defenses. Frequent transfusions of fresh blood are perhaps the most useful agent of support. Close attention to the salt and water balance will be instituted by the physician attending such a patient. Bacterial invasion may be combatted by the use of the newer antibiotic agents. Rest is important for several weeks for those patients receiving large doses of radiation. The Atomic Energy Commission announces that it is spending about one million dollars a year in studying the acute radiation syndrome. It is hoped that this study will yield some additional and more effective means of dealing with

(Continued on Page 1114)

HEALTH—AN INTERNATIONAL AS WELL AS LOCAL PROBLEM

F. W. BEHMLER, M.D.
Morris, Minnesota

PROBABLY all of us here tonight have worked with microscopes. Whether we are physicians, dentists, veterinarians, nurses, bacteriologists, engineers, or health educators, we have all studied biology. The study of life, if it is to amount to anything more than theory, requires the use of the microscope. Most of us became acquainted with this useful instrument in our high school days, and some of us have continued to use it in our work ever since. Every public health person realizes how potent the microscope has been in our fight on disease. Without it, we would not possess a fraction of our present knowledge of tuberculosis, syphilis, typhoid fever, and all the other bacterial diseases. By long and careful study, we have been able to learn many of the secrets of the minute forms of life that cause disease.

All of us, too, have had the experience of finding our eyes grow tired with long concentration on some such tiny particle as a pathogenic organism or a blood cell. In our school days we sought relief by looking away from the microscope and out of the window—over the tree tops—up at the far-away sky. But how many of us, I wonder, have gone beyond that? How many of us have ever studied the worlds beyond our own, as revealed by a giant telescope?

It may seem to you that looking at the universe through a telescope has little meaning for the public health worker. Yet at all times, and particularly at a time like the present, we may need to give our eyes and our minds a rest from the close study of immediate problems. We need to take note of what is happening in the broader world that lies beyond the scale of our microscopes.

Tonight marks the close of the fourth year of the Minnesota Public Health Conference. At each previous annual meeting, your president and other speakers have stressed the need for developing *local health services*. I know that in earlier sessions of this present conference, you have all discussed that matter and many problems related to it. We doctors, for instance, talked about the duties of the health officer in a small town. In a manner of speaking, we looked at our health problems through a microscope. Then Mr. Stowman* took us up on a hilltop and gave us a view of public health as it looks from the standpoint of the World Health Organization. He made us realize that you can't always pin down health and disease under an oil-immersion lens. You also need to look at it through the great, world-sweeping eye of a telescope.

Meeting local health needs is important—vitally important. But we must beware of developing the complacent attitude that, if we take care of our home-town problems, we need do nothing more. Our old Minnesota friend, Dr. Herman Hilleboe, has reminded us that "There can be no isolationism in the field of health. The fight against disease is not a national or racial problem; it is a task for the whole of humanity." And at the 1946 meeting of the American Public Health Association, just after the close of that war that we fondly hoped was the last one for our generation, Dr. Thomas Parran told us that "by force of events we have become citizens of the world."

Our world citizenship in matters of health has become even more apparent during the last few years. Within the lifetime of most of us, our world has shrunk to such a degree that we scarcely need a telescope to see into its remotest corners. Time and again we are reminded that disease is no respecter of international boundaries—that health problems in any part of the world are our problems.

In the United States, particularly in our own Middle West, we enjoy long life, and our general death rate is low. Our children's expectation of life at birth today is close to seventy years. Diseases that attacked us frequently in the early days —smallpox, typhoid fever, cholera—are now almost unknown in Minnesota and our neighboring states. Yet only the thinnest film of protection lies between us and many potential epidemics. As Dr. Frank Boudreau puts it, "A yellow fever mosquito may easily travel to this country as a stowaway on a plane from South America. A rat infected with plague may find its way from China,

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Retiring president's address presented at the annual meeting of the Minnesota Public Health Conference, September 26, 1950.

*Kund Stowman, Chief, Research and Technical Advisory Branch, National Health Division, U. S. Public Health Service.

India, or South America. An apparently healthy passenger may be a carrier of cholera or other intestinal disease." And no longer can we depend upon quarantine to safeguard us. That system worked pretty well when travel was slow and the plague spots of the world were far away. In 1950, the European refugee infected with typhus, the Brazilian with malaria, the Korean with cholera, are right outside our doors. We must combat these diseases at their source in order to prevent their spread into our own vulnerable territory.

Some people live in daily fear of bacteriological warfare. If they only realized it, a sporadic, undirected bacteriological warfare is being waged against us all the time. Bacteria menace us far more widely and more constantly than bombs. Our only defense against such warfare is *the building up of international co-operation.* In a world in which co-operation on the political level seems at present an unrealizable dream, it is heartening to recall that it has existed for a long time in the field of health. Widespread public health is both an instrument and a condition of any lasting peace. In that same 1946 address by Dr. Parran from which I quoted earlier, there is also this assertion: "The World Health Organization brought together for the first time after the war, representatives of virtually all nations, including certain ex-enemy nations. It is worth while recalling that after the first World War, a conference on health was the first to bring together representatives of nations which a few months before had been at each other's throats."

And note this comment by Raymond B. Fosdick, former president of the Rockefeller Foundation:

"An American soldier wounded on a battlefield in the Far East owes his life to the Japanese scientist, Kitasato, who isolated the bacillus of tetanus. A Russian soldier saved by a blood transfusion is indebted to Landsteiner, an Austrian. A German soldier is shielded from typhoid fever with the help of a Russian, Metchnikoff. A Dutch marine in the East Indies is protected from malaria because of the experiments of an Italian, Grassi; while a British aviator in North Africa escapes death from surgical infection because a Frenchman, Pasteur, and a German, Koch, elaborated a new technique. . . Our children are guarded against diphtheria by what a Japanese and a German did; they are protected from smallpox by an Englishman's work; they are saved from rabies because of a Frenchman; they are cured of pellagra through the researches of an Austrian. From birth to death they are surrounded by an invisible host—the spirits of men who never thought in terms of flags or boundary lines and who never served a lesser loyalty than the welfare of mankind."

Well, there you have two admirable examples of the telescopic view of public health. You may agree with that view in principle. But you may say that it doesn't exactly solve your local medical, nursing, or sanitation problems, and it doesn't throw much light on what we ought to do in the present situation, when those needs are being ominously underscored by the threat of total war. Whether or not that threat materializes, it is likely that many public health people will be called upon for special services, thus jeopardizing our local health programs. I should be doing you no service if I brought my year as your president to a close with nothing more than the request that you try from now on to take a broader view of all health problems. So, let me try to round out this valediction with a few concrete suggestions.

First, we must realize that the requisites for individual, public, and world health *are all interdependent.* One individual's sinusitis or migraine may cause him to make a rash judgment, a wrong decision, a costly mistake. I should not be surprised if a future autopsy on Stalin were to reveal evidence of a gnawing gastric ulcer. Nor is it beyond the bounds of belief that nations were plunged into war a decade ago chiefly because a surly little boy named Adolf Schickelgruber was kicked around by a frustrated father and nagged by a neurotic mother. I am not suggesting that any one of us here this evening could precipitate a global war by neglecting a decayed tooth or an ingrowing toenail, but it is by no means impossible that such a thing could lead, through a series of chain reactions, to far-reaching and fatal consequences, not only for the individual concerned but also for many other persons.

Viruses are not the only things that spread without being noticed. The same process takes place with states of mind. We can infect other people from our own despondency or hostility, just as easily as from a cold in the head. Hence our first responsibility is to ourselves—to gain and maintain that condition of "complete physical, mental, and social well-being" that constitutes the World Health Organization's definition of health.

Second, in taking the long view we must not overlook our local needs. In learning to use the telescope we must never entirely substitute it for the microscope. Our goal, to be sure, is optimal health for every human being. But in order to attain that goal we must secure the active participation of as many people as possible. As Dr. Brock Chisholm points out, "Health cannot be given as a gift. It must be obtained through constant vigilance and increasing action." To maintain that vigilance, to guarantee that action, we must have broad participation in all worthwhile health measures. I have said little tonight about that phase of our responsibilities, because anything I might say is already well known to most of you. Talking about local health organization in Minnesota is like talking about the eradication of tuberculosis. We know all the facts necessary to do the job. All that remains for us now is to do it. So, may I urge upon all of you once again to take stock of your local health services and needs, and to talk about your problems with your own community leaders. Effective action in this respect will stem only from many groups of well-informed people who have a clear idea of what they need and are determined to get it and make it work. That's how local health services have come into being in other states. Ask them how they did it, and the answer always boils down to the simple statement that a lot of people wanted it. When enough people want something, they eventually get it.

No matter what the immediate future may hold, public health services in our state should not be curtailed. Whatever defensive measures may be set up against possible attack, those measures will be centered in and directed by our public health organization. In that task, as in many others, this Minnesota Public Health Conference is now in a position to give strong leadership. It is true that we are a young organization. But in times of crisis, young people often have to grow up pretty fast. The fact that we have already gained recognition by the American Public Health Association speaks well for our progress toward maturity. That progress will be aided, and our ability to carry responsibility will be increased, by the addition to our membership of more members of the health professions and more lay people who have an intelligent and active interest in community health.

We see before us today, as we have seen in previous years, the spectacle of many nations that have fallen under the heel of dictators because they did not know or did not care enough to hold on to their liberties. We will not join them unless we allow our democratic processes to lapse. One way of maintaining those democratic processes is to build up associations in which, as in this conference of ours, we work for the benefit of everyone through the active participation of all qualified people.

We have talked tonight about science—about using the instruments of science for the discovery of truth and the promotion of health. Our generation has learned through hard experience the tragic *neutrality* of science. It may be used to save life or to destroy it. But we have not abandoned science for that reason. Nor do we have any intention of doing so. Through the gradual spread of knowledge, we may hope to bring about the end that we so greatly desire—the attainment of universal peace and security. Improvement of the physical, mental, and social health of all nations is essential to that end. We need to establish in every country a nucleus of workers who have the necessary training and skill to promote all aspects of health.

This is not a one-sided missionary endeavor for the American people. Let us never make the mistake of assuming that all knowledge and all truth are in our possession. There is much that we can learn from other countries, even as they have much to learn from us. We need to pool *all* health knowledge—to work with all people of good will everywhere toward the achievement of worldwide health. To do this effectively we must continue to use both the microscope and the telescope —to study intensively our own health needs and those of our home communities, our state, and our nation, but at the same time to look beyond these immediate concerns to those of all the nations of the earth.

FLATFOOT, WITH SPECIAL CONSIDERATION OF TARSAL COALITION

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FLATFOOT is one of the common causes of foot pain.[2] Certain types of flatfoot are more disabling than others. Flatfoot causes more discomfort in adolescence than in later life. The patient tends to modify his life to his disability as he gets into the twenties and thirties. Canadian Army statistics, based on examination of 3,600 young men, disclosed that 8 per cent of the men had some form of disabling flatfoot.

A new concept regarding the cause of rigid flatfoot recently has been advanced by Harris and Beath.[5] This has changed the thinking about this particular type of flatfoot. It is, therefore, felt that a review of flatfoot, particularly rigid flatfoot, will be timely.

Classification of Flatfoot

Flatfoot may be divided into three main types, which are listed in Table I.

TABLE I. CLASSIFICATION OF FLATFOOT

I. Flattened longitudinal arch. This is a structural and asymptomatic derangement; it is not a pathologic condition.
II. Relaxed flatfoot. Hypermobile flatfoot with short tendo achillis.
III. Rigid flatfoot.
    A. Coalition of the tarsus.
        1. Classification as to type of union.
            a. Fibrous.
            b. Cartilaginous.
            c. Bony.
        2. Classification as to site.
            a. Talocalcaneal.
            b. Calcaneonavicular.
            c. Involvement of other tarsal bones.
    B. Arthritis of tarsal joints.

Flattened Longitudinal Arch

The most common type of flatfoot is a simple flattening of the longitudinal arch. This type of flatfoot is not painful. It is an individual characteristic, like the shape of the head or the length of the arms, and is familial. Ankle valgus is not present, and there is no rigidity or hypermobility. This type of flatfoot is not affected by weight bearing, and it does not produce any roentgenographic changes except a depression of the longitudinal arch.

It is extremely important to recognize this entity for what it is—a symptomless, nonpathologic, individual characteristic. If the patient has foot pain, one must search elsewhere for its cause.

Relaxed Flatfoot

Relaxed flatfoot also has been designated by the term "hypermobile flatfoot with short tendo achillis," which is lengthy but descriptive. This type of flatfoot is pathologic and is a well-known clinical entity. Examination disclosed that approximately 6 per cent of 3,619 recruits for the Canadian Army had mild or severe flatfoot of this type.[4,5] The deformity exists from childhood, but pain does not occur until adolescence.

Three basic theories have been advanced to explain the cause of relaxed flatfoot: (1) congenital relaxation of the supporting tarsal ligaments; (2) congenital shortening of the triceps surae group of muscles resulting in shortening of the tendo achillis, which pulls on the calcaneus and causes a valgus position of this bone, and (3) congenital deficiency in the skeletal support of the talus.

Harris and Beath[4] expressed the opinion that the basic cause of this type of flatfoot is improper support of the talus by the anterosuperior portion of the calcaneus. This results in a dropping downward and inward of the talus, which, of course, flattens the longitudinal arch and produces a prominence of the head of the talus on the medial side of the foot, and valgus of the ankle. Shortening of the tendo achillis occurs secondarily. Pain is caused by excessive ligamentous strain, and traumatic arthritis frequently develops in later years.

The characteristics of the relaxed flatfoot with a short tendo achillis are ankle valgus, flattening of the longitudinal arch, and a medial prominence of the foot (Fig. 1*a* and *b*). The normal contour of the longitudinal arch is restored when the weight of the body is removed from the feet (Fig. 1*c*). A shortened tendo achillis is shown in Fig. 1*d*. Dorsiflexion beyond 90 degrees is not possible. When testing the extent of dorsiflexion, the patient's knee should be in a neutral position, not in a flexed or hyperextended position. A further characteristic, emphasized by Harris and Beath,[4] is hypermobility of the midtarsal joints which can

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Read at the meeting of the Minnesota State Medical Society, Duluth, Minnesota, June 12 to 14, 1950.

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be elicited by holding the calcaneus in the palm of the left hand and moving the fore part of the foot medially and laterally.

Roentgenographic examination is helpful, although not diagnostic. The talus is seen to be placed medially and inferiorly on the calcaneus. A lateral deviation of the fore part of the foot on the talus also occurs (Fig. 1*e* and *f*). One should read the Army Foot Survey by Harris and Beath[3] for accurate measurements of the tarsal bones and for a description of relaxed flatfoot.

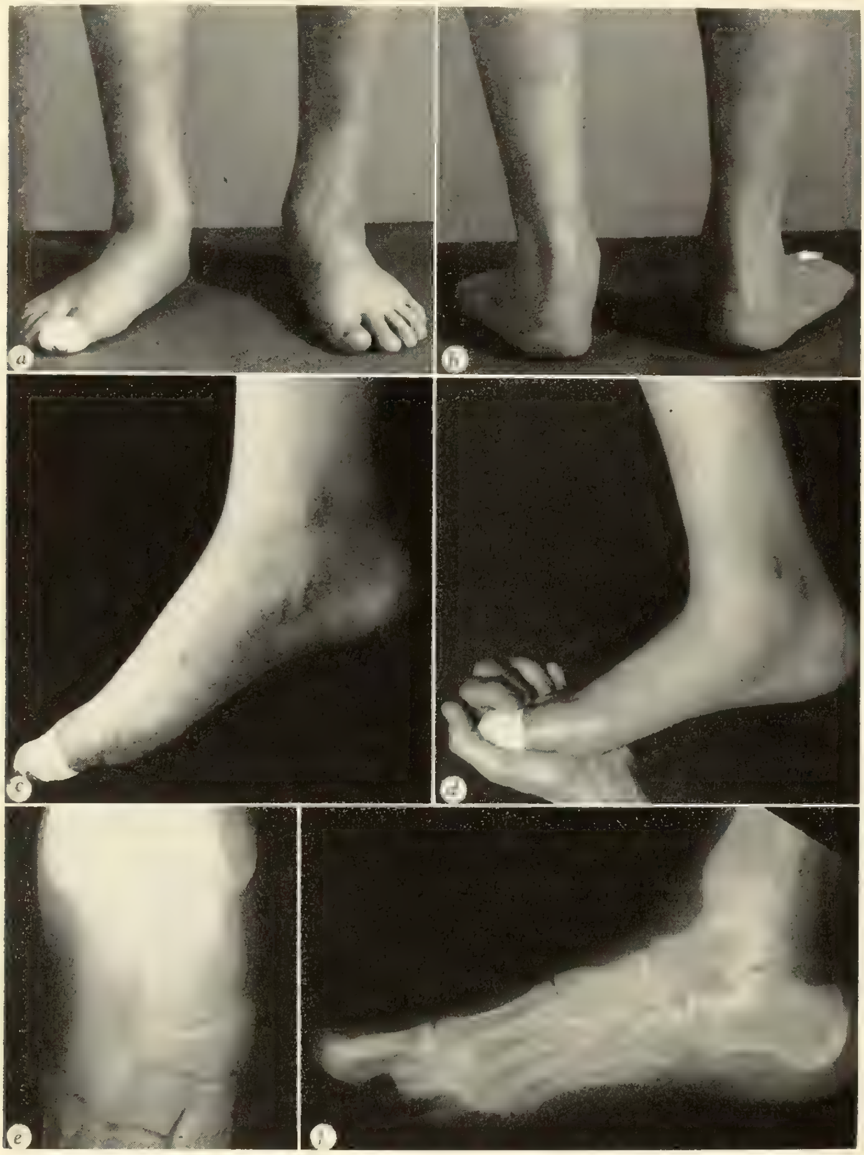

Fig. 1. Hypermobile flatfoot with short tendo achillis. *a*, Front view; *b*, rear view; *c*, appearance of arch without weight bearing; *d*, maximal dorsiflexion obtainable; *e*, anteroposterior roentgenogram; *f*, lateral roentgenogram.

Treatment of relaxed flatfoot is directed toward support of the talus. Active support is laudable but seldom possible. In cases in which the deformity is not severe, exercises to strengthen the supporting muscles of the foot are sometimes of value if the patients are co-operative. A passive form of support usually is necessary, however. In these cases longitudinal arch supports of metal, cork, sponge rubber, felt, leather or other material usually will relieve the symptoms. In addition, a wedge may be placed on the inner part of the heel of the shoe if there is much ankle valgus. In cases in which relaxed flatfoot causes considerable disability and is not relieved by this form of treatment, operation often is necessary. Many operations have been devised for relief of pain in the relaxed flatfoot. Lengthening of the tendo achillis alone has been advocated by some surgeons. Stabilization of the talonavicular, naviculocuneiform and cuneiform-metatarsal joints alone or in combination has been advocated. Plication of the medial tarsal ligaments combined with tendon transplantation with or without arthrodesis, also has been used. However, if operation is indicated, triple arthrodesis, that is, calcaneotalar, calcaneocuboidal and talonavicular arthrodesis, probably is the procedure of choice. Operation should be done, as a rule, when patients are in the teens or early twenties. As mentioned previously, the patients usually adjust to a sedentary life after they reach the twenties, and operation is seldom indicated then.

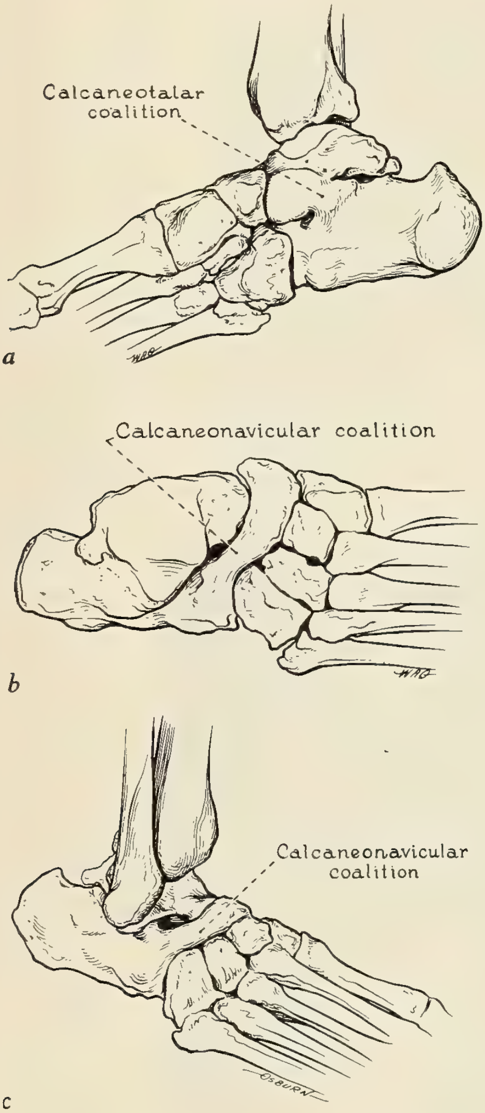

Fig. 2. Artist's drawing of calcaneonavicular coalition. *a,* Medio-inferior view; *b,* anterior view; *c,* lateral view.

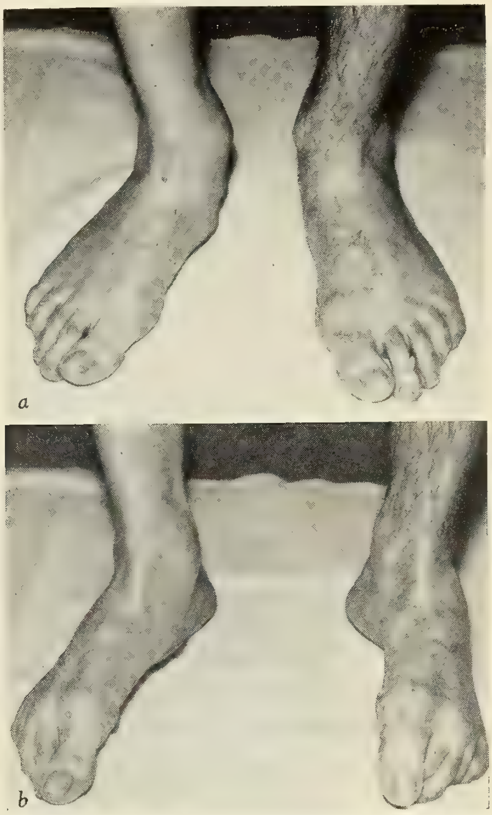

Fig. 3. Calcaneonavicular coalition (Case 4). *a,* Appearance of feet; bony coalition on right side (shaved); fibrous coalition on left side (unshaven); *b,* limitation of inversion.

Rigid Flatfoot

Except in a very few cases of tarsal arthritis resulting from rheumatoid arthritis, infection or trauma, rigid flatfoot is due to tarsal coalition. Coalition, by definition, means the growing together, or union of. Applied specificially in this case, it denotes the union of two or more tarsal bones. The union may be fibrous, cartilaginous or bony (Table I), and it may occur between the calcaneus and the talus, between the calcaneus and the navicular (Fig. 2*a, b,* and *c*), or rarely between other tarsal bones.

Rigid flatfoot has been most commonly called "peroneal spastic flatfoot" in the past. Owing chiefly to the writings of Harris and Beath,[5] this concept is being discarded. The rigidity of this

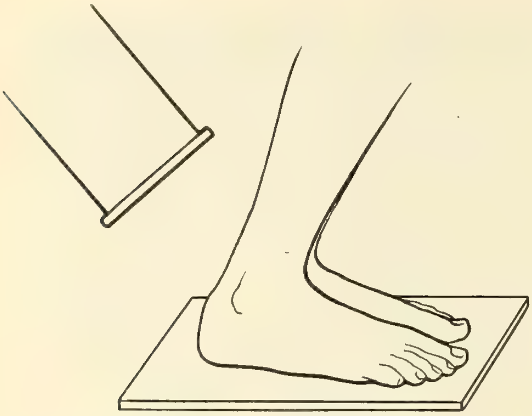

Fig. 4. Positioning for making special roentgenograms ("coalition views") to demonstrate calcaneotalar coalition.

type of flatfoot is caused by actual union of the tarsal joints, and not by spastic peroneal muscles. The peroneal muscles are not spastic, but simply tight because the tarsal rigidity prevents their stretching in a normal fashion. Inversion of the foot is impossible in cases of rigid flatfoot. Harris and Beath said that anatomists have known of tarsal coalition for fifty years. Sporadic reports of cases of calcaneonavicular coalition appeared in the literature in 1921,[7] 1923[6] and 1927,[1] but the entity calcaneotalar coalition was not described clinically until Harris and Beath[5] published their significant report in 1948.

The incidence of tarsal coalition was 2 per cent among 3,600 men who were examined for enlistment in the Canadian Army.[5] Operation disclosed tarsal coalition in five cases which were observed at the Mayo Clinic in 1948 and 1949. In three of these cases, the coalition involved the calcaneus and talus; in the remaining two cases, it involved the calcaneus and navicular. The anomaly undoubtedly was present but was not recognized in other cases which were observed in the same period. We are recognizing more and more cases as our knowledge of the subject increases.

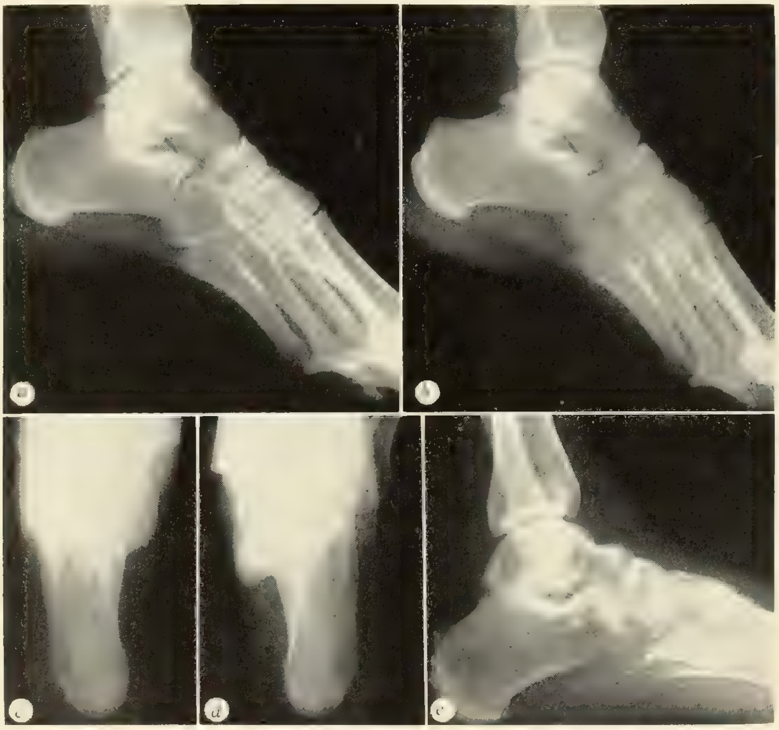

Fig. 5. Roentgenograms in case of calcaneotalar coalition in right foot (Case 1). *a*, Lateral roentgenogram of right foot; *b*, lateral roentgenogram of left foot: no change is evident in either *a* or *b*; *c*, sustentaculum tali-talar joint faintly visible in medial portion of left foot; *d*, obliteration of sustentaculum tali-talar joint of right foot; *e*, appearance of right foot one year after calcaneotalar arthrodesis.

Like hypermobile flatfoot, tarsal coalition is congenital and produces symptoms in the teens. Fig. 3*a* shows the characteristic appearance of the feet in a case of tarsal coalition. This anomaly causes flattening of the longitudinal arch, a medial prominence of the tarsus in the region of the head of the talus, and ankle valgus. The arch of the foot is not affected by weight bearing. In Figure 3*b* one can see that the patient is unable to invert the foot. The patient illustrated has a complete bony coalition on the right or the shaved side but only a partial coalition on the left or unshaved side. Although the peroneal muscles and tendons appear tight, they are not in true spasm.

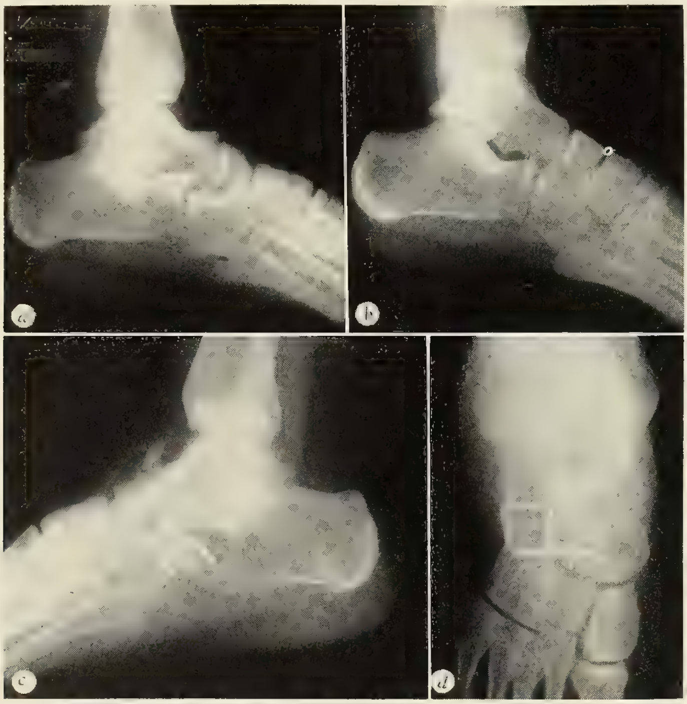

Fig. 6. Roentgenograms in case of calcaneotalar coalition in right foot (Case 2). *a*, Lateral roentgenogram of right foot showing spurring of supero-anterior lip of talus; *b*, lateral roentgenogram of left or normal foot; *c*, lateral roentgenogram of right foot made nineteen months after triple arthrodesis; *d*, anteroposterior roentgenogram of left or normal foot made at same time as the one shown in *c*.

In cases of tarsal coalition, roentgenographic examination is of real value if properly used. The presence of this anomaly always can be suspected on the basis of the clinical findings. If examination discloses rigid flatfoot, one should attempt to prove the presence of tarsal coalition by roentgenographic examination. Routine anteroposterior and lateral roentgenograms always will reveal the presence of calcaneonavicular coalition. Although routine roentgenograms sometimes will suggest the presence of calcaneotalar coalition, a special roentgenogram, which Harris and Beath[5] have designated the "coalition view" (Fig. 4), is necessary if the presence of this anomaly is to be proved. By the use of this roentgenogram, obliteration of the sustentaculum tali-talar joint can be demonstrated. In cases of calcaneotalar coalition, routine roentgenograms often will disclose spurring of the anterior-superior lip of the talus and a "fuzziness" of the subtalar joint, when

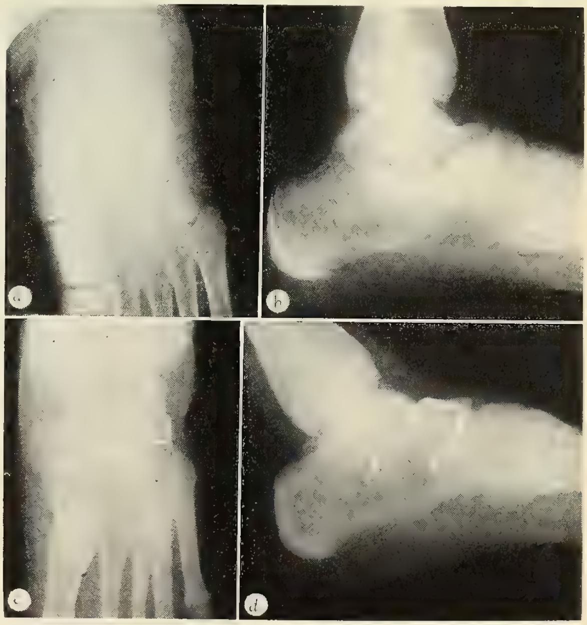

Fig. 7. Roentgenograms in case of calcaneonavicular bar (Case 3). *a* and *b*, anteroposterior and lateral roentgenograms of right foot showing calcaneonavicular bar; *c* and *d*, anteroposterior and lateral roentgenograms of right foot made twenty months after triple arthrodesis.

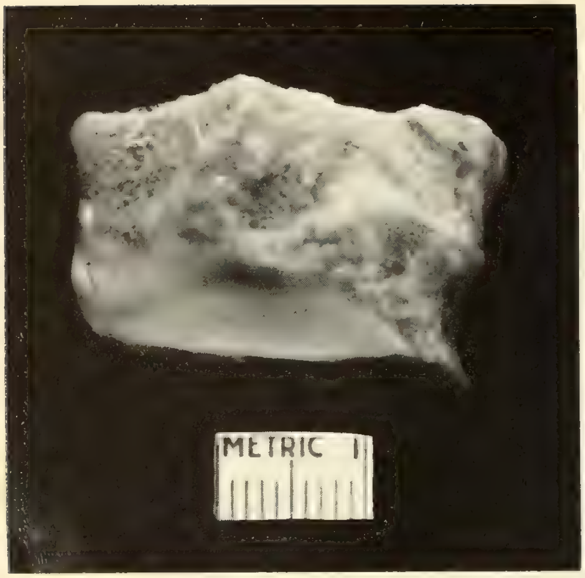

Fig. 8. Calcaneonavicular bar removed in Case 3.

compared with similar roentgenograms of the opposite or normal foot.

Treatment of rigid flatfoot should be directed toward the cause of the condition, which, except in a very few cases, is coalition of two or more of the tarsal bones. Triple arthrodesis usually is the treatment of choice. Calcaneotalar and talonavicular arthrodesis probably are inadequate. In addition, calcaneocuboidal arthrodesis should be performed. This was illustrated in one of our cases (Case 4), in which the patient had calcaneonavicular coalition. Most of the pain was centered in the region of the calcaneocuboidal joint, and the patient obtained complete relief of his pain when triple arthrodesis was performed. As in the treatment of disabling relaxed flatfoot, operation should not be undertaken until the patient has reached the age of ten or twelve years.

Report of Cases

Case 1.—A girl, aged eighteen years, came to the clinic because of pain in the right foot. The pain had been present for one year. Examination disclosed the usual signs of tarsal coalition including inability to invert the foot, a prominence on the medial portion of the foot, and flattening of the longitudinal arch. Lateral roentgenograms did not disclose any definite change in either foot (Fig. 5*a* and *b*). In a special roentgenogram ("coalition view") of the left foot, the sustentaculum tali-talar joint could be seen faintly in the medial portion of the foot (Fig. 5*c*). A similar roentgenogram of the right foot disclosed obliteration of this joint (Fig. 5*d*). The presence of calcaneotalar coalition was proved at operation. The calcaneotalar bridge was excised and calcaneotalar arthrodesis was performed. This procedure produced partial relief of the symptoms. Figure 5*e* shows the roentgenographic appearance of the foot one year after the operation. As our experience has increased, we feel that a better result would have been obtained if triple arthrodesis had been performed in this case.

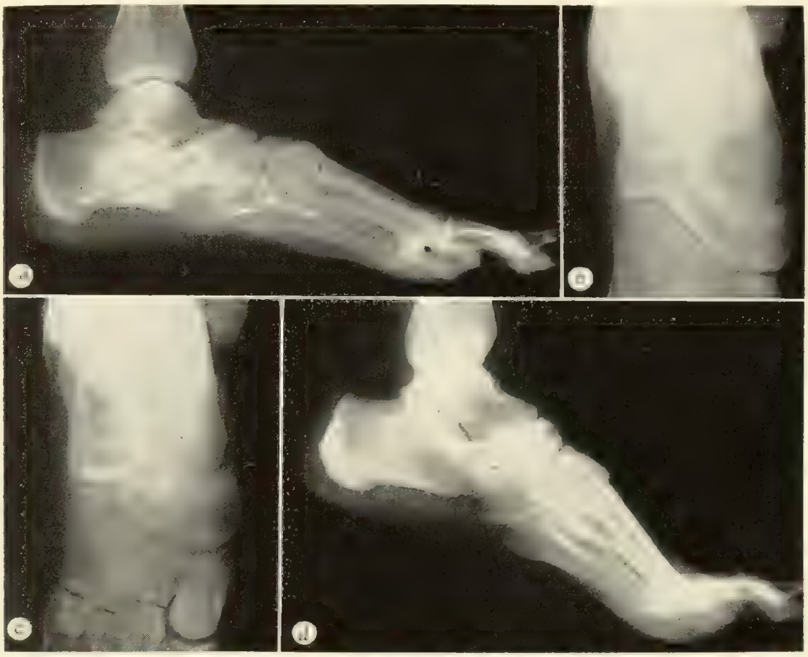

Fig. 9. Roentgenograms in case of calcaneonavicular coalition (Case 4). *a* and *b*, Lateral and anteroposterior roentgenograms of right foot showing bony coalition of the calcaneus and navicular; *c* and *d*, anteroposterior and lateral roentgenograms of left foot showing fibrous coalition of the calcaneus and navicular.

Case 2.—A girl, aged thirteen years, had had pain in her right foot for several years. Examination revealed a prominence of the medial part of the right tarsus and inability to invert the foot. A lateral roentgenogram of the right foot (Fig. 6*a*) disclosed a finding frequently observed in cases of calcaneotalar coalition, namely, spurring of the superior-anterior lip of the talus. It also revealed "fuzziness" of the subtalar joint when it was compared with a similar roentgenogram of the left or normal foot (Fig. 6*b*). The presence of calcaneotalar coalition was proved at operation. Figure 6*c* is a lateral roentgenogram of the right foot which was made nineteen months after triple arthrodesis was performed, and Figure 6*d* is a similar roentgenogram of the opposite foot which was made at the same time. At that time, the patient did not have any symptoms which were referable to the right foot and the appearance of the foot was good.

Case 3.—A boy, aged ten years, was brought to the clinic because of disabling pain which had been present in his right foot since he had fallen six months previously. Examination disclosed tarsal rigidity, medial prominence of the tarsus, and ankle valgus, which are the usual findings in cases of tarsal coalition. Anteroposterior and lateral roentgenograms disclosed a calcaneonavicular bar (Fig. 7*a* and *b*). Figure 8 shows the bar which was removed in the course of triple arthrodesis. The bar extended across the "sinus tarsi" in the usual manner and resulted in bony union between the calcaneus and navicular. When this paper was written, the patient did not have any pain in his right foot. Figure 7*c* and *d* shows the roentgenographic appearance of the foot twenty months after the operation.

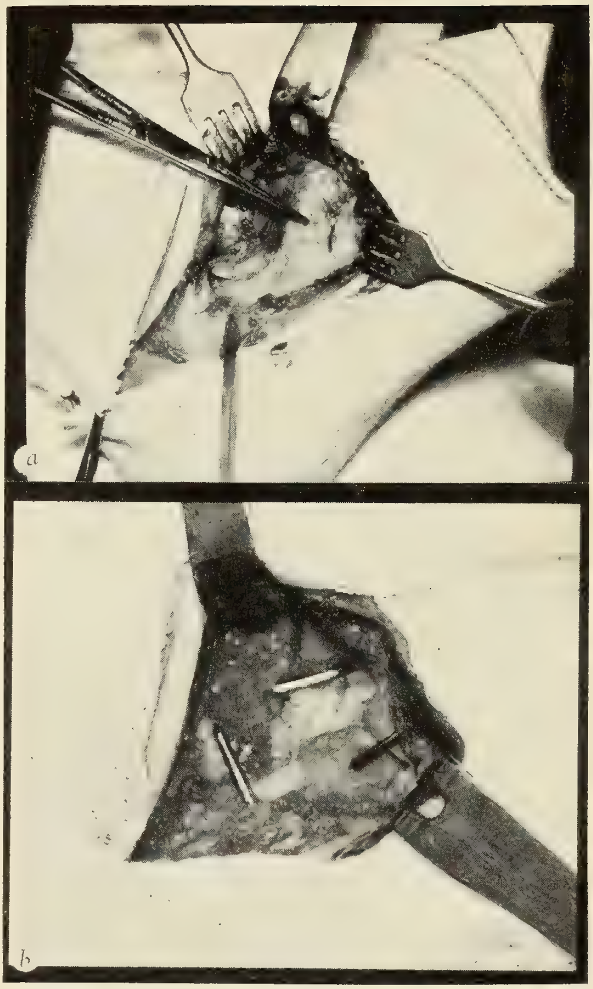

Fig. 10*a*, Calcaneonavicular bar filling "sinus tarsi" of right foot in Case 4; *b*, triple arthrodesis has been performed with metal staples and bone chips.

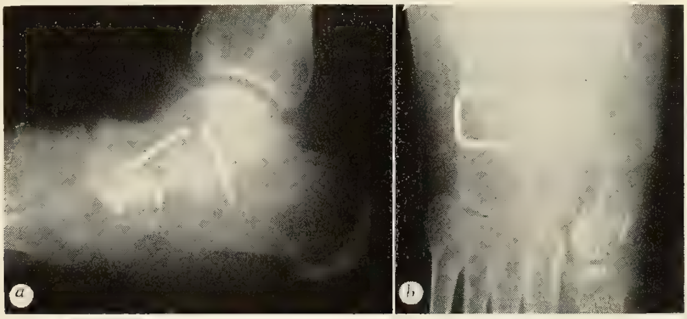

Fig. 11*a* and *b*, Lateral and anteroposterior roentgenograms of right foot made six months after triple arthrodesis in case of calcaneonavicular coalition (Case 4).

Case 4.—A man, aged twenty-four years, had had pain in his feet for ten years. The pain had been more severe in the right foot than it had been in the left foot. He had been rejected for service in the Army in World War II, and he had been unable to obtain regular employment. The appearance of his feet is shown in Figure 3*a* and *b*. Roentgenographic examination disclosed bony coalition of the calcaneus and navicular of the right foot (Fig. 9*a* and *b*) and fibrous or cartilaginous coalition of the same bones of the left foot (Fig. 9*c* and *d*). "Fuzziness" of the subtalar joint is more noticeable on the right side than it is on the left. Figure 10*a* shows the calcaneonavicular coalition at the time of operation. Triple arthrodesis was performed, utilizing metal staples for fixation (Fig. 10*b*). Figure 11*a* and *b* shows the roentgenographic appearance of the foot six months after the operation. Nine months after

(Continued on Page 1103)

THE COMMON HEMORRHAGIC DISEASES OF CHILDHOOD

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THE pediatrician is probably less certain in his approach to the hemorrhagic disorders than to almost any other group of childhood diseases. This is due largely to the inadequate and impractical presentation of the bleeding diatheses in standard textbooks, which in turn can be accounted for by the lack of a sound concept to explain the physiology of hemostasis.

The control of hemorrhage is so perfected that abnormal bleeding is relatively uncommon. When it does occur, it is due to either one of two basic causes: (1) a defective hemostatic response following injury of a blood vessel, or (2) a hyperpermeability of the capillaries. The first is generally the result of faulty coagulation or more explicitly of an inadequate formation of thrombin. The second is due probably to one or more unknown agents or factors that affect the permeability of the capillaries. Blood is lost by diapedesis and it manifests itself as purpura, which involves principally the skin and mucous membranes.

Hemorrhagic Disease Due to Defective Coagulation

It is now being gradually recognized that the coagulation mechanism consists of at least three separate steps or reactions which can be expressed by the following equations:

Thromboplastinogen + platelet activity = thromboplastin
Thromboplastin + calcium + labile factor + prothrombin = thrombin
Fibrinogen + thrombin = fibrin.

It is important to emphasize that one important reaction not expressed in these equations is the labilization of platelets by thrombin which brings about a chain reaction designated as the thrombinogenic cycle. The lysis of platelets is not only essential for the formation of thrombin, but it also is responsible for the liberation of a vasoconstrictor which the writer considers the key agent in hemostasis. Whenever the formation of thrombin is diminished to the critical level, a bleeding tendency develops. The most important causes of decreased thrombin production are lack of platelets, thromboplastinogen, labile factor or prothrombin. On this basis a simple classification of the common hemorrhagic diseases due to defective coagulation can be outlined.

I. Hypothromboplastinemia
    A. Thrombocytopenia
    B. Hypothromboplastinogenemia
        1. Congenital (hemophilia)
    C. Anti-platelet activator.
II. Hypoprothrombinemia
    A. Congenital
        1. Type 1 (diminished free prothrombin)
        2. Type 2 (diminished free and total prothrombin)
        3. Type 3 (diminished labile factor)
    B. Acquired
        1. Dietary deficiency of vitamin K
            a. Hemorrhagic disease of the newborn
            b. Diarrhea
        2. Faulty absorption of vitamin K from intestine
            a. Congenital atresia or absence of biliary ducts
        3. Toxins (dicumarol, salicylates, et cetera)

Thrombocytopenia

Since deficiency of platelets is generally associated with purpura, it will be discussed under that heading.

Hypothromboplastinogenemia (Hempohilia)

Thromboplastinogen which is the precursor of thromboplastin is a constituent of the plasma. Normally its concentration is sufficient to supply enough free thromboplastin to activate most of the prothrombin of the blood. By measuring the prothrombin remaining in the blood after coagulation under standardized conditions, the concentration of thromboplastinogen can be quantitatively estimated. This procedure is called the prothrombin consumption test.

In hemophilia a congenital lack of thromboplastinogen is present at birth and apparently remains unchanged throughout life. In severe hemophilia, only a trace of this clotting factor is present in the blood, whereas in the milder cases the concentration is higher but still below the minimum requirement for effective hemostasis. Changes in the apparent severity of the disease

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From the Department of Biochemistry, Marquette University School of Medicine.
Read at the annual meeting of the Minnesota State Medical Association, Duluth, Minnesota, June 13, 1950.

and the occurrence of bleeding episodes do not appear to be caused by changes in the basic defect, but by a secondary factor such as an alteration in the vascular response which is superimposed on the primary deficiency.

On the basis of this concept of hemophilia, both the diagnosis and treatment can be rationalized. In the past the diagnosis depended on a history of heredity, a prolonged coagulation time and a bleeding tendency. Since a positive family history is obtainable only in about one-half of the cases, and since the other two findings are not specific for hemophilia, it is easy to see that the diagnosis was far from exact; and since the clotting time in mild hemophilics is only slightly prolonged many cases assuredly remained undiagnosed. With the development of the prothrombin consumption test which measures the amount of prothrombin remaining in the serum after coagulation, a specific diagnostic procedure for hemophilia became available. This test measures the available thromboplastin of the blood. When normal blood clots, little prothrombin remains in the serum; whereas when hemophilic blood clots, little thromboplastin is available and therefore little prothrombin is consumed; hemophilic serum as a consequence still contains a high concentration of prothrombin. In severe hemophilia the serum prothrombin time is as low as eight seconds and the hemophilic range is eight to fourteen seconds whereas the normal range is eighteen to thirty seconds.

A low prothrombin consumption time with a normal platelet count and a normal plasma prothrombin time, makes the diagnosis of hemophilia almost certain. The one important condition which is not ruled out is the hemophilic-like disease which is caused by the presence of a plasma factor which apparently inhibits the platelet activator of thromboplastinogen. This disease which is rare in childhood will be briefly discussed later.

The nature of the bleeding tendency in hemophilia is helpful in the diagnosis. Abnormal bleeding following circumcision should immediately arouse suspicion, and a persistent tendency to bruise always deserves careful study. Characteristically these bruises in hemophilia are actually small hematomas. Only when these hematomas are superficial, do they discolor the skin. The deeper hematomas can only be palpated and they are occasionally mistaken for abscesses.

The severe case of hemophilia with a positive family history and a markedly prolonged coagulation time offers no diagnostic problem; but the mild case, with a negative family history and a coagulation time that is nearly normal even when done meticulously, could not be diagnosed with any degree of certainty until the prothrombin consumption test was developed. But it is the mild case that deserves particular attention since such an individual may without warning have severe hemorrhage from even a minor operation such as a tonsillectomy or the extraction of a tooth. Furthermore, a hemophilic, no matter how mild, transmits the defect to all his daughters and the severity of the disease in their offsprings is unpredictable.

The treatment of hemophilic bleeding should be guided by the basic fact that these patients rarely die from exsanguination but that the pressure effects from internal bleeding accounts for nearly all the injurious results. The bleeding usually comes from arterioles and small arteries.

The immediate therapeutic approach is local, and the important measures are cold, pressure and rest. Cold, preferably an ice bag, should be applied immediately after injury. By this means, the vessels in the injured area become contracted and the blood flow becomes diminished, thereby producing conditions favorable for stanching. Pressure likewise is exceedingly helpful in limiting bleeding; in fact, it appears fairly certain that most hemophilic bleeding is eventually stopped by the pressure exerted by the hematoma on the injured vessel. Complete rest obviously is indicated. It should be emphasized and re-emphasized that heat should never be applied to the area of bleeding, for it causes dilatation of blood vessels which accentuates the hemorrhage. One must be guarded in not mistaking a hematoma for a deep infection and then treating it with a poultice and heat.

By means of prompt local treatment hemarthroses may often be aborted or minimized. Much of the crippling in hemophilia can be prevented, but this requires education of both the physician and the parents. The treatment of deformed joints can often be benefited by physicotherapy.

The only known reliable systemic treatment is blood transfusion. By this means thromboplastinogen, which the hemophilic blood lacks, is supplied, and the hemostatic efficiency is temporarily increased. Transfusions are far more efficient prophylactically than curatively. In fact a patient properly prepared with a large plasma transfusion may undergo major surgery without abnormal bleeding. Fresh plasma is preferable to whole blood since it is twice as effective and can be given repeatedly and in large volumes.

Transfusions should not be given indiscriminately, but only when local measures have failed or when a patient is prepared for an operation. There is suggestive evidence that transfusions may cause the formation of an inhibitory agent in the blood which apparently acts on the platelet activator. The condition thus produced will be discussed in the following section.

Hemophilic-like Disease

The disease is very similar to hemophilia clinically as well as regards laboratory findings. The coagulation time is prolonged and the prothrombin consumption time is low. The disease can, however, be readily distinguished from true hemophilia by determining the effect on the clotting when the blood is mixed with an equal volume of normal blood. A mixture of normal and hemophilic blood will have a normal clotting time, while an equal mixture of hemophilic-like blood and normal blood will have a delayed clotting time. The disease is caused by a factor which inhibits the platelet activator of thromboplastinogen. As stated before, transfusions may cause the condition, and recently it has been found that plasma fractions are even more prone to induce the formation of this so-called "circulating anticoagulant." The disease is important because the hemostatic defect cannot be corrected by transfusions. It becomes necessary therefore in studying hemophilic blood to determine what effect it has when mixed with normal blood. Hemophilia may be complicated by the coexistence of hemophilia-like disease, and when this occurs transfusions have no therapeutic efficacy. Fortunately the hemophilic-like disease is rare in children, and its production can be minimized by avoiding the injection of plasma protein fractions, and by giving blood or plasma transfusions only when urgently needed.

Hypoprothrombinemia

Deficiency of prothrombin may be congenital or acquired. There are three known types of congenital hypoprothrombinemia. To explain how this is possible, it is necessary to discuss briefly the new concept of the prothrombin complex. In human blood prothrombin is present partly in a reactive form and partly in a precursor state. Only free prothrombin can be converted to thrombin and this requires its interaction with thromboplastin, calcium and an agent discovered by the writer in 1943, which he named labile factor. This substance is closely related to prothrombin, and for convenience can be considered to be part of the prothrombin complex. In one type of congenital hypoprothrombinemia, both the free and total prothrombin levels are low; in the second the free prothrombin is diminished but the total is normal; while in the third the labile factor is deficient. Clinically these three conditions are very similar to hemophilia but can readily be distinguished by the prolonged prothrombin time. None of the three responds to vitamin K, but all can be temporarily corrected by blood or plasma transfusions. Since the labile factor is destroyed by storage, only fresh blood or plasma should be employed in treating the third type. The bleeding can often be controlled by the local measures which are effective in hemophilia.

The most important acquired type of hypoprothrombinemia for the pediatrician is the hemorrhagic disease of the newborn. The fetus is far more susceptible to vitamin K deficiency than the adult, and if the mother's nutrition is defective, the newborn child often develops a marked hypoprothrombinemia during the first few days of life. During this period the baby is a potential bleeder protected only by the intactness of its vascular system. Any trauma may precipitate a hemorrhage which may lead to dire results if prompt combative measures are not immediately instituted. A plasma transfusion becomes effective immediately, and vitamin K given intravenously restores the prothrombin level in four hours. By supplying the mother with a few cents worth of vitamin K during the last week or two of pregnancy, the hypoprothrombinemia of the newborn can be almost completely abolished. It is a pity that a few physicians belittle the efficacy of vitamin K. Anyone who has seen a fullblown case of hemorrhagic disease of the newborn saved only by prompt and heroic measures is willing to use vitamin K prophylactically even though only one baby in ten thousand may require this measure.

Obstructive jaundice, which is an important cause of hypoprothrombinemia in the adult, often causes little or no decrease of the prothrombin level of infants. The writer has seen a number of babies with complete atresia of the biliary ducts and complete absence of bile from the intestines for months without a significant drop in the prothrombin level. In persistent diarrhea vitamin K deficiency may occur. The use of antibacterial agents which sterilize the intestinal tract may accentuate the lack of vitamin K.

Certain drugs depress the synthesis of prothrombin and cause a drop in prothrombin sufficiently marked to cause a bleeding state. The most common group of compounds having this prothrombinopenic action are the salicylates. By improving the nutritional state of the child this danger can generally be averted. There is no justification for using a salicylate preparation fortfied with a synthetic compound having vitamin K activity.

Hypoprothrombinemia in childhood is not common, but the possibility that it may occur should never be ignored. Whenever there is a possibility for its occurrence, a prothrombin time determination will furnish the correct answer. The study of any bleeding condition is not complete unless this test is done. Therapeutically it is well to remember that vitamin K is only effective if a deficiency of this vitamin causes the bleeding condition. In all other conditions of hypoprothrombinemia, plasma or whole blood transfusions only are effective.

Thrombocytopenic Purpura

Purpura is one of the most common forms of hemorrhage in childhood and one of the most difficult to cope with. It seems fairly clear that there are two separate but closely related components that account for the hemorrhagic state. The two are the lack of platelets and a vascular factor. Thrombocytopenia alone does not cause a purpuric condition. On the one hand, one sees repeatedly in cases of lymphatic leukemia a platelet count of 10,000 or less with no signs of purpura and a normal bleeding or tourniquet test. On the other hand, purpura with typical petechiae may appear with a normal platelet count. Bleeding as a rule is more severe in thrombocytopenic than in non-thrombocytopenic purpura. It seems logical to conclude that the purpura is due to a vascular factor, the nature of which is not understood. If there is a co-existence of thrombopenia, a coagulation defect is superimposed, since the activation of prothrombin is very incomplete when the platelets are low.

The recognition of thrombocytopenic purpura offers no difficulties, but the vexing problem is finding the cause. Probably the most common occurrence is as a complication of an infectious disease, and frequently the severity of the latter bears no relation to the intensity of the purpura. A mild case of rubella or chicken pox may induce a pronounced thrombocytopenic purpura with profuse bleeding. Blood dyscrasias, especially acute leukemia, are often complicated by purpuric bleeding. Allergy and drug sensitivity can cause purpura, and it appears that the emotional state may have some influence. Depression of bone marrow causes a fall in the platelet count. In addition to these secondary purpuras, a number of cases remain in which no specific cause can be found. These are designated essential, primary or idiopathic.

The treatment of thrombocytopenic purpura remains uncertain. The majority of cases recover spontaneously. Usually transfusions are given, but other than restoring erythrocytes and hemoglobin, probably little benefit is obtained. In a few cases, the writer has found that folic acid appeared to diminish the bleeding tendency without affecting the platelet count. Toluidine blue and protamine are disappointing in acute thrombocytopenic purpura.

When to do a splenectomy remains a moot question. Since a spontaneous and permanent recovery is frequent in children, the removal of the spleen should never be considered impetuously. To be sure, it is a serious responsibility to manage a case of thrombocytopenic purpura since the possibility of a spontaneous cerebral hemorrhage is ever present, but it is to be remembered that a splenectomy in the acute stage is likewise not without danger. Before a splenectomy is performed, all possible causes should be ruled out, a period of several weeks allowed to see whether a spontaneous recovery may occur, and a careful bone marrow study be made. If the marrow is aplastic, no benefit need be expected from the operation.

Since the bleeding in non-thrombocytopenic purpura (the Henoch-Schönlein types) is usually much less of a problem than the other symptoms, no special measures generally are necessary to

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DEPROPANEX IN POST-SURGERY

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SINCE before the last war, the writers have been routinely using the deproteinated pancreatic extract, Depropanex, post-surgically. As is well known, this drug is used in cases where smooth muscle spasm is present. In renal colic where it has been used for a considerable time it, in conjunction with other sedation, has been observed by some to produce great relief. What prompted us to try Depropanex post-surgically was the observation that, before Depropanex was administered in renal colic, there was a very distressing paralytic ileus present; following Depropanex injections, this condition was very shortly improved and relieved. It was so impressive to us that we then wondered what Depropanex would do in patients with the same distressing condition following abdominal operations. We therefore decided to give Depropanex routinely to all our patients following operations. The first injection of 4 c.c. is given the surgical patient upon his return to his room, even before he is awake. A second dose of 4 c.c. is given in the evening. These two doses of Depropanex are then given routinely twice daily for three to five days, depending upon the progress and the condition of the patient, as well as on the type of operation performed. A patient having only the appendix removed may not need the Depropanex more than twice daily for three days, while one who has had both gall bladder and appendix removed is usually given Depropanex for four to five days. The same applies to other major abdominal operations.

Now that approximately a decade has passed during which time we have used Depropanex post-operatively, we feel that the results have been so uniformly encouraging that it warrants a report on what we have experienced. Before we go into the details of what we have observed, we wish to state that we have been most fortunate in having an anesthetist who was trained for a year at the University of Minnesota Hospitals in Minneapolis. The anesthesia she has used almost exclusively for induction is Penthothal Sodium, followed by Cyclo-Propane gas. Curare has also been used to overcome peritoneal spasm and tension.

In acute gallbladder colic, Depropanex in conjunction with sedation has been found to be efficacious in relieving the spasm, pain and distress, as it does in renal colic. Following gallbladder surgery, it is reasonably safe to assume that Depropanex will reduce the spasm in the common duct as well as in the sphincter of Oddi. Relieving this spasm will, in turn, relieve the bile back-pressure created in the liver, ducts, and on the cystic stump. This relief of spasm, with resultant early flow of bile, is definitely an adjunct in the smooth recovery of the patient. The diminution of nausea and vomiting in these cases leads us to conclude that Depropanex is the aiding factor in this smooth post-operative recovery.

But the outstanding improvement we have observed on patients routinely given Depropanex post-operatively has been the control of paralytic ileus. The abdomen remains uniformly soft all through the critical post-operative days. When gas pains begin, the patient states that the pain will travel along in the bowel as if he had taken a laxative, and the gas pain never becomes distressing. There does not appear to be any noticeable abdominal distention; the abdominal wall does not feel tense nor rigid; the distressed facies is absent; the patient tolerates sips of water and invariably impresses us as being comfortable. When an enema is given on the third day the nurses report good results, while rarely do they have to use a rectal tube to siphon off the enema. On various occasions we have stopped the Depropanex to observe what takes place. The following day the patient will complain of distressing gas pains, but when we give Depropanex again, the gas pain soon becomes relieved and begins to move on in the bowel.

The above results have led us to speculate on the physiological action of Depropanex. It is advertised as relieving spasm. But we are wondering whether, if it relieves spasm, it does not also supply the smooth muscle with something that brings about a normal tone and natural power which thereby overcomes the muscle weakness which may eventually lead to a paralytic bowel with resultant distention? This uniformly good tone to the bowel all through the post-operative period has led us to notice that there is less vomiting as well as less acute dilatation of the stomach which ordinarily follows all types of operations, especially the major ones. Rarely do we resort to the nasal suction apparatus, and since there is very little vomiting we do not need to resort to intravenous fluids. Since these two adjuncts have been practically eliminated in respect to these patients, it is an obvious economy to the patient, while the floor nurses are thereby given more time for their daily floor routine. The same is true for the time-consuming work and anxiety the paralytic bowel causes when repeated enemas must be given for relief, to say nothing of the distress the rectal tube and enemas cause the ailing patient. The rarity of these distressing complications naturally leaves the patient in a much-desired frame of mind during these post-surgical days. In fact, we have had some patients who have given us the impression by their silent looks: "When is the tough time following this operation going to strike?"

We encourage our patients to get out of bed as soon as possible post-operatively. Since they make such a smooth recovery, the distress by their so doing is not too great for them.

In summing up our observations on these patients to whom we have routinely given Depropanex following surgery, we have observed the following:

1. No ill after-effects from the use of Depropanex.
2. Practically a complete elimination of post-operative paralytic ileus.
3. Less nausea and vomiting; therefore, less dehydration and acute dilatation of the stomach.
4. A smoother, easier, more pain-free recovery; therefore, a less anxious patient.
5. Intravenous fluids seldom used; therefore, economy to the patient.
6. Nasal suction and repeated enemas eliminated; thus, less punishment for the patient.
7. Patients over fifty years make as smooth a recovery as do the younger ones.

We believe that the beneficial effect of Depropanex on patients throughout the post-operative period has been convincingly demonstrated.

Has this deproteinated pancreatic extract, Depropanex, been fully researched?

The authors are cognizant of the fact that others have found so-called "hypotensive" extracts such as Depropanex without demonstrable intrinsic therapeutic merit in the dosage and methods of administration recommended. (J.A.M.A., March 3, 1945, p. 522.) We are also informed of the fact that Depropanex has not been submitted to the Council on Pharmacy and Chemistry for approval. We have used this preparation, however, in post-surgery patients and feel it has been of definite therapeutic value. This report is made, therefore, in the hope that our experience may be of value to others.

FLATFOOT, WITH SPECIAL CONSIDERATION OF TARSAL COALITION

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the operation, the patient was walking on his right foot and was not having any pain on the right. It is anticipated that a similar operative procedure eventually may have to be performed on the left foot.

Summary

There are three main types of flatfoot. The most common is an asymptomatic flattening of the longitudinal arch. This is an individual characteristic. The two types of symptomatic flatfoot are relaxed flatfoot and rigid flatfoot. Recent advance in the knowledge of rigid flatfoot seems to indicate that in most cases the feet are rigid because of coalition existing between the calcaneus and talus or between the calcaneus and the navicular.

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THE ROENTGEN DIAGNOSIS OF SILICOSIS

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(Continued from the October Issue)

Pneumoconiosis and Silicosis Occurring in Various Industries

All of the roentgen manifestations that have been described above have taken into consideration the hypothesis that the lesions in many or all instances have been produced by free silica and modified by other dusts (contaminants). As stated before, it is probable that very few opportunities are afforded to study lung changes in which pure silica is the only dust present. One should therefore bear in mind that the manifestations of silicosis in the various industries are likely to be different. For instance, the roentgen findings in the slate and talc workers are likely to be different from those occurring in hard and soft coal miners. The roentgen findings may differ even in different foundries. In most instances it requires many years (six to fifteen) of exposure before one can demonstrate roentgen evidence of silicosis. The exceptions to this rule are classified under the head of "rapidly developing silicosis."

Rapidly developing silicosis has been described by Gardner.[27] When individuals are exposed to excessive quantities of finely divided silica, an unusual kind of reaction develops. The overwhelming deposits of silica seem to stimulate connective tissues in every part of the lung at the same time. The nodules are of microscopic proportions and in most cases there have been complicating infections.

I have seen a great many roentgenograms (some single, a few stereoscopic) of individuals who were diagnosed as having rapidly developing silicosis. In the advanced cases lobar consolidations, due largely to the superimposed infection, obscured the changes due to silicosis. In the earlier cases the roentgenographic manifestations were those sometimes observed in an interstitial type of pneumonitis of ill-defined shadows similar to that produced by a prominent pectoral fold. In a few cases in which I made roentgenoscopic observations, the costal and diaphragmatic excursions seemed to be limited. A number of the individuals that I saw had lost weight, were pale and dyspneic. Experience in this country was similar to that in England,[49] in that most of the fatal cases were associated with tuberculosis.

Another consideration having to do with silicosis is concerned with what might be called individual susceptibility. Physicians interested in this subject have noticed that not all individuals exposed to dust in the same industry, and apparently in the same manner, develop silicosis. Why such a difference is manifest no one knows. Many explanations have been offered, but none of them are completely satisfactory. Lanza[42] feels that the question of individual susceptibility has been overworked and is not as significant as the question of dust exposure (dosage). There seems to be a general agreement that when a tuberculous infection is present, the actions of the silica and the infection are enhanced.

Asbestosis

Asbestosis is the second of the recognized specific pneumoconioses. Since, however, its roentgen manifestations in no way simulate those occurring in silicosis, the criteria for its diagnosis are not reviewed.

Differential Diagnosis

Any exposition of the criteria applicable to the diagnosis of the specific pneumoconioses, and of silicosis in particular, must include other conditions which not infrequently make the problem of differential diagnosis extremely difficult. Some of these are so familiar as to require but brief mention; others, either because of their unusual interest or because of the frequency with which they are misdiagnosed as silicosis, will be considered in some detail.

First in order of consideration are the benign pneumoconioses, and second, the many pulmonary diseases productive of roentgen changes similar to those of silicosis but unassociated with the inhalation of dust.

The Non-specific Pneumoconioses

Under the heading "non-specific pneumoconioses," attention is directed to the pulmonary reactions resulting from the inhalation of all types of mineral dust which are incapable of stimulating within the lungs the development of progressive fibrosis. Anthracosis, siderosis, as well as the reactions to the inhalation of cement, gypsum, and the various silicates, with the exception of asbestos and possibly talc, are all included.

The alveolar phagocytes, regardless of the composition of the inhaled dust, tend to concentrate the particles within the lymphoid tissues of the lungs and mediastinum as well as in the areolar tissues about the perivascular lymphatic trunks. Excessive accumulations may excite a low-grade chronic inflammatory reaction which is non-progressive but which may be productive of small amounts of grossly invisible cellular connective tissue. The only secondary effect is the appearance of emphysema, microscopic in its proportions and of no clinical significance.[32] Roentgenographically there may be some increase in prominence of the normal linear pulmonic markings, but with the exception of those "roentgenologic conditions" productive of a pseudo-nodulation and resulting from the inhalation of inert but radiopaque dusts, no *specific* deviations from the normal can be identified. Increasing experience will doubtless lead to the recognition of others, but to date those in the latter category to receive consideration are baritosis, siderosis, and the changes occurring in silver polishers, and those due to the inhalation of tin oxide.

Baritosis, originally described by Arrigoni,[3] results from the inhalation of barium sulfate, and occurs chiefly among the baryta miners in Italy. I reported a small incidence among workers in a Pennsylvania plant.[55] In baritosis there is no respiratory incapacity, the only evidence of the presence of the mineral being the demonstration upon the roentgenogram of sharply circumscribed nodules evenly distributed throughout the lung fields.[56] Duplication of the condition in the experimental animal is unproductive of fibrosis, indicating that the nodulation demonstrable in roentgenograms results from the direct visualization of compact collections of radiopaque particles within the lungs.[32]

Siderosis, an analogous condition occurs as the result of a number of industrial processes, chief among which are electric arc-welding, metal-grinding, silver finishing, and possibly boiler-scaling. Collis,[8] in 1923, suggested that errors in the diagnosis of silicosis in iron miners might be made, due to the radiopacity of iron oxide. Subsequently, but without the benefit of clarifying pathological material, Doig and McLaughlin,[15] in 1936, reported the occurrence of fine nodulation in 6 of 16 electric arc-welders. In 1938, Enzer and Sander[18] described similar findings in 5 of 26 electric arc-welders, who had worked for an average of nineteen years using bare metal rods containing 99 per cent iron and 1 per cent free silica, and in one case presented necropsy findings to indicate that the roentgen changes were a direct consequence of the collection of radiopaque iron oxide particles within the lungs. Sander[69] states that Enzer has since obtained three additional and confirmatory autopsy cases.

In 1945, entirely similar roentgen findings were reported by Pendergrass and Leopold[56] in four of ten metal-grinders who had worked from twelve to seventeen years in a plant shown to be free of a silica hazard. The metal ground was used in the manufacture of bearings and was identified as chrome vanadium and chrome molybedenum tool-steel containing about 98 per cent iron, 1.8 per cent alloy, and 0.2 per cent silica. For the grinding process, artificial abrasive wheels, recognized as innocuous from the standpoint of a silica hazard and composed of bakelite, carborundum, and aluminum oxide, were used exclusively throughout the occupational lives of the affected persons.

More recently, the occurrence of identical roentgen findings in silver-polishers has been reported from England.[46] Quite pure and finely divided iron oxide in the form of either "rouge" or "crocus" is used in the final finishing of silver, and when applied to revolving "dollies" is productive of considerable dust, consisting primarily of iron oxide contaminated with metallic silver, the latter also being radiopaque. Four men, employed as silver-finishers for periods of twenty to forty years, were examined. Chest roentgenograms of all presented the changes to be described below, and a subsequent autopsy on one revealed only particulate collections of iron oxide with small amounts of silver within the lungs.

A similar condition has been described as occurring in boiler-scalers.[9,16,75] Here, however, there may be an associated silica hazard, the elimination of which is required before the changes seen can be properly attributed to siderosis.

Pathologically, in siderosis there is gross evidence of pigmentation, the ferrous nature of which may be demonstrated by proper staining. Histologic sections show the pigment to be distributed chiefly in the perivascular lymphatics, the subpleural spaces and the interalveolar septa. It is the heavy accumulation in the perivascular lymphatics of the iron oxide pigment, in itself radiopaque, which accounts for the roentgen findings. At no time have any reactive phenomena, provocative of fibrosis within the cells, been described.

The pulmonary changes in siderosis, as reflected in the chest roentgenogram, cannot from the film alone be distinguished from those already described in detail as occurring in simple silicosis. They are, therefore, simple of definition and consist of discrete nodular densities distributed uniformly throughout both lungs, without hilar enlargement but in some cases with an associated reticulation resulting from an increased prominence of the linear markings.

Pseudo-nodulation due to inhalation of tin oxide has been reported by Pendergrass and Pryde[57] and Barták et al.[4] Pendergrass and Pryde recorded a case which had been studied by Dr. Hollis E. Potter of Chicago. The patient was a man, aged forty-five, who had worked at a single job of bagging tin oxide for fifteen years. There was no disability. The roentgenogram showed diffuse dense pseudo-nodulation throughout both lungs similar to that observed in baritosis and considered to be a benign pneumoconiosis. Chemical analysis of the tin oxide showed it to be 96.5 per cent tin oxide, while the remaining 3.5 per cent contained aluminum, iron, and sodium. No silica was found. Experimental studies of the material placed in a dog's lung and in phantoms showed that its density was sufficiently great to produce shadows equal to or greater than those produced by iron. The pseudo-nodulation produced by tin oxide is not to be confused with the pneumoconiosis reported in the tin miners of Cornwall;[35] the industrial hazard among them was one of silicosis.

It seems quite obvious that a detailed occupational history is fundamental to the differential diagnosis of silicosis and the pseudo-nodular types of the benign pneumoconioses.

Talc Pneumoconiosis

It has already been indicated that the silicates, with the exception of asbestos and possibly talc, belong in the category of inert dusts. Asbestos, a fibrous silicate, is productive of a specific pneumoconiosis characterized by the formation of a progressive interstitial pulmonary fibrosis. Talc, also a silicate, with certain physical characteristics in common with asbestos, requires more specific evaluation (Hobbs.[39]).

The available experimental evidence would indicate that talc alone is incapable of producing a progressive fibrosis.[31,38] The criticism has been advanced, however, that the inhalation experiments were of insufficient duration to define conclusively the effect of long continued industrial exposure, this latter being fundamental to the development of specific changes.[73] Siegal reports no case with less than ten years' exposure, but then records an incidence of 14.5 per cent "talc pneumoconiosis."

Roentgenograms are described as showing a bilateral diffuse haziness or "ground-glass" appearance, with some tendency to parahilar and subapical localization, and, in some cases, with the presence of an ill defined nodulation and/or conglomerate areas of fibrosis leading to a suspicion, as yet unproved, of underlying infection.[62,73] Siegal[73] further directs attention to an occasional right-sided predominance and to a rarely demonstrable blurring or "shagginess" of the cardiac silhouette, reminiscent of asbestosis. He also describes in detail the occurrence of "pleural plaques," long associated with the inhalation of talc.

The similarity of the described roentgenographic manifestations to those of asbestosis is quite striking, but the occurrence of an asbestosis-like reaction following prolonged industrial exposure to talc would seem unlikely. Further controlled investigation, designed to eliminate the possible complicating factors of quartz-contaminated dust and infection, is, however, imperative before concluding with finality that the roentgen changes are the reflection of a specific and progressive fibrosis, and that talc is the sole etiologic agent in their production. In this regard, it seems quite probable that the described coexistent nodulation may be silicotic in origin. In the reported autopsy cases[62] there had been other opportunities for the inhalation of dusts presumably contaminated with silica, and in the mining of talc itself similar exposures have not been excluded.

Lung Changes Associated With Alumina Abrasives (Shaver's Disease)

This disease was first observed[71] in February, 1942, in a thirty-three-year-old man, who for a period of eight years was engaged in manufacturing an abrasive, the main ingredient of which was bauxite. Since that time Shaver[72] has observed thirty-four well-established and thirty-eight early cases of lung involvement associated with the industry.

Occupational History.[71]—The process involved has been in operation for years and was believed to be innocuous. No one before had been discovered suffering with unusual lung involvement resulting from or associated with their occupation.

The abrasive being manufactured is *corundum.* It is an aluminum oxide of great hardness which is used as an abrasive.

The processing is done in electric arc furnaces. The material being treated consists of a mixture of bauxite, iron and coke. The bauxite is ground and mixed with other ingredients and then shoveled into large metal pots. The electrodes are lowered into the pots and the material is fused at temperatures of approximately 2000°C. During operation dense fumes are elaborated. The fumes contain alumina and silica and other materials in a finely divided state ($Al_2 0_3$ 50 per cent and $Si 0_2$ 35 per cent).

Symptomatology.—The symptoms are varied but *dyspnea* is the most outstanding. Sudden attacks of extreme breathlessness are frequently described. There is a history of cough and a frothy sputum.

In the advanced cases, substernal discomfort and tightness of chest, and occasional pleuritic type of pain is described. Weakness, fatigue and sleeplessness are associated with advancing dyspnea.

Physical Findings.—Most cases have weight-loss associated with a loss of appetite. The chest signs vary with the presence or absence of pneumothoraces. Cyanosis, limited chest expansion, harsh breath sounds, variable rales and tachycardia are some of the signs found.

Pathology.—Overwhelming fibrous tissue formation, alveolar wall thickening and profound emphysema are characteristic findings.

Roentgen Findings.—In well-established cases, a widened mediastinal shadow may partially obscure the shadows of the hila. The domes of the diaphragm are usually irregular. The domes may be elevated and tented. The distortions of the mediastinum and diaphragm become less marked and may disappear when pneumotherax occurs.

Lace-like granular shadows occur bilaterally in the upper halves of each lung, especially pronounced toward the hila. Conglomerate shadows are seen in the more advanced cases. In advanced cases, emphysematous blebs are seen. Pneumothorax, either unilateral or bilateral, and, with or without a pleural collection not infrequently occurs.

Vanadium Pentoxide

There is another industrial disease due to the *toxic effects of vanadium pentoxide.*[82] I have no personal experience with this but a short discussion is included for completeness.

Vanadium is a silvery white metal rarely encountered in its pure state. The ores are distributed mainly in Peru, South Africa, and Rhodesia.[82] The chief uses of vanadium are to raise the hardness and malleability of steel and to increase its fatigue-resisting properties. Vanadium pentoxide, a yellowish red powder, is used as an oxidizing agent in the conversion of naphthalene to phthalic anhydride and in place of platinum in the modified contact process of sulfuric acid manufacture.[82]

It had long been known that vanadium pentoxide dust would cause bronchitis among workers, but the full significance of the condition was not appreciated until the report of Wyers[82] appeared. He has observed at least fifty workers, men and women, some of whom showed reticulated shadows in the lower lung fields. It is not known whether these shadows are due to accumulation of dust in the air sacs or fibrosis. Vanadium workers complain of paroxysmal cough and pains in the chest, and have a tenacious sputum, which may be blood-streaked. They may develop emphysema. Other signs of the condition are those of systemic intoxication, which may be evidenced by diarrhea, anorexia, emaciation, visual defects, paralysis, vertigo, and convulsions.

Other and Confusing Clauses of Nodular Densities Within the Lungs

Tuberculosis.—Tuberculosis, following an hematogenous dissemination, presents on the roentgenogram evenly distributed nodular densities throughout both lungs, occasionally indistinguishable from those occurring in simple silicosis. Except in these cases, difficulty in the differential diagnosis between tuberculosis and silicosis seldom occurs, but in them the distinction must be made upon the basis of history, physical examination, and laboratory findings. Frequently an additional aid is the identification, in tuberculosis, of an accompanying localized infiltrate or cavity, without, however, evidence of conglomerate fibrosis of the type already described as occurring in tuberculo-silicosis.

Histoplasmosis.—Darling,[10,11,12] in 1906 and 1907, recorded three cases of a generalized and fatal protozoan infection, subsequently identified as histoplasmosis, which produced pseudo-tubercles in the lungs and areas of focal necrosis in the liver, spleen, and lymph nodes. Further reports[7,41,50,52,66,67,81,83] in more recent years have shown the disease to be world-wide in distribution, but most common in the east-central portion of the United States; have adequately documented its pathology and clinical course; and have offered evidence in support of the thesis that it is not invariably fatal but that it in all probability exists most commonly in a benign and asymptomatic form. DeMonbreun[13] in 1932 proved its fungous origin by identifying *Histoplasma capsulatum* as the causative organism.

The symptoms of histoplasmosis, when it is clinically manifest, are protean, being those of a generalized infection of the reticulo-endothelial system, for which Meleny[47] suggests the name "reticulo-endothelial cytomycosis." Of primary interest in this presentation, however, is the 20 per cent[41] occurrence of significant lung lesions. In some of these the roentgen findings closely simulate those of pulmonary tuberculosis, consisting of apical infiltrations with or without cavity; in others, miliary lesions 5 to 15 mm. in diameter are evenly distributed throughout both lungs. It is these latter which may resemble silicosis, and make necessary the inclusion of histoplasmosis in the differential diagnosis of the nodular pneumoconioses.

Also, in the areas endemic for histoplasmosis, the incidence of "disseminated miliary calcifications" is relatively more frequent than in the country at large.[43] While in such cases the nodules characteristically vary slightly in size, are of irregular distribution, and lack an uncalcified periphery, their appearance is such that they may rarely require differentiation from silicosis with central calcification of the nodules.

The Mycotic Infections.—There are a number of conditions, such as fungus infestations, that may simulate the various manifestations of silicosis. One of the important points in arriving at the diagnosis is for the radiologist to bear these in mind. Some of the more frequent infestations seen by us are mentioned.

In *moniliasis,* in which the chief pathogen has been found to be *Monilia albicans,* the roentgenogram shows irregular areas of infiltration which tend to become nodular. The appearance is similar to that in simple silicosis with nodular predominance. Fawcitt[23] has called attention to finding bronchomycoses as a complication in hematite iron-ore workers.

Sporotrichosis is due to a Streptothrix. In the cases that we have observed, the appearance is identical with nodular silicosis.

The roentgen appearance in *actinomycosis* may be that of a bronchopneumonia. The process may be diffuse or localized to one lobe. It may be confused with silicosis with infection.

It is sometimes difficult to establish the true diagnosis of a fungus disease, but every effort must be made to exclude the lesions that simulate silicosis before making a definite diagnosis of the latter.

Pulmonary Hemosiderosis.—Pulmonary hemosiderosis clearly demonstrable in roentgenograms as diffuse nodulation,[2] similar to that produced by silicosis, is said to occur in some patients with mitral stenosis.[56,59,70] Scott,[70] in an excellent paper, has discussed the subject in detail and has shown, I believe, that hemosiderin is responsible for the shadows in the roentgenograms. In our patients there was a preceding rheumatic fever. The shadow pattern is similar to that produced by silicosis or the pseudo-nodulation of benign pneumoconiosis.

Polycythemia Vera.—Polycythemia vera in patients with cyanosis and vascular engorgement may present a markedly increased prominence of the vascular shadows in the lung. Vessels seen in an axial plane simulate the nodulation found in silicosis. There are other shadows in polycythemia vera of unknown origin which simulate the shadows produced by conglomerate fibrosis. The history, physical examination, and blood count will assist in the differential diagnosis.

Carcinoma of the Lung.—Carcinomatous metastases may resemble the nodular and conglomerate shadows of silicosis with and without infection. Primary carcinomas arising in the gastro-intestinal tract and kidney tumors account for the great majority of such metastases, but carcinomas arising from other sites may be responsible. Here again the history and clinical findings should assist greatly in determining whether a malignant process is responsible for the abnormal shadow pattern.

Recently we have had two cases that were diagnosed primary carcinoma of the lung on the basis of a roentgen finding of an isolated mass shadow within one lung. There was a history in each instance that the patient was a hard coal miner for years. The only clinical history of significance was hemophysis. In one patient the lung lesion was due to a carcinoma, in the other, silicosis.

Mediastinal Enlargement.—In many silicotic patients, there are massive shadows that coalesce with the mediastinal shadow. On the single posteroanterior roentgenogram, the appearance simulates that produced by lymphoblastoma. I have no doubt that many of these patients have been treated for a malignant process. These massive shadows adjacent to the mediastinum, may be due either to massive lesions in the apices of the lower lobes or to massive lesions in the upper lobes which have migrated to the mediastinum.

Boeck's Sarcoid.—Boeck's sarcoid is primarily a systemic disease, classically presenting widespread involvement of the lymph nodes, viscera, osseous system, and skin. Commonly, however, its clinical manifestations occur in various combinations, leading to its separation into types, as the uveoparotid fever of Heerfordt and Mikulicz's syndrome. Similarly, there is a fairly large group —seventeen in Reisner's series of thirty-five cases[64]—in which associated lymphadenopathy and pulmonary involvement constitute either the most conspicuous or the only discernible manifestation.

The manifestations in chest roentgenograms are in turn extremely variable as to extent, distribution, and character, depending largely upon the phase of evolution of the disease process at the time of examination. For convenience of description, and without implication that the process is at any time static, both Reisner[64] and Bernstein[5] have subdivided the roentgen findings into several types. In attempting to identify the various forms of the disease, a free use of both classifications is made.

1. In some cases the only abnormality demonstrable on the roentgenogram is a bilateral, usually symmetrical enlargement of hilar and tracheobronchial lymph nodes.
2. The so-called "miliary sarcoidosis" is characterized by the presence of widespread nodular densities throughout the lungs which are usually quite uniform in size and distribution, but may at times exhibit a moderate tendency to coalesce and be most dense in the middle thirds. Commonly there is easily demonstrable hilar lymphadenopathy but, depending upon the phase of the disease, this may or may not be present.
3. A third group includes those cases in which there is hilar lymphadenopathy together with a string-like infiltration radiating outward from the hila into the pulmonary parenchyma. These string-like shadows appear perivascular in distribution and may be combined with a generalized nodulation such as has already been described.
4. A fourth type presents roentgenographically diffuse parenchymal infiltrations visualized as well demarcated but irregular and often contracted areas of increased density, having the appearance of fibrosis. Hilar lymphadenopathy is a variable finding, as is an associated background of increased linear markings and nodulation.

In all forms of this disease the pathological lesion is the non-caseating tubercle. The clinical course, however, is variable though inevitably chronic. The first and second types above described may represent an early and reversible stage, and both show a pronounced tendency to resolution. King[40] has reported complete clearing within an average of twenty-two months in twenty-three of thirty-seven cases of pulmonary sarcoidosis, but does not specify the type of involvement. In the third and fourth types the changes are at least partially irreversible. Some degree of resorption may occur, but there inevitably remains a residuum of increased linear markings and at times a massive contracting fibrosis. The latter leads to varying degrees of disability, and in some cases to a fatal termination, the commonest causes of which are the development of or transition into a typically caseating pulmonary tuberculosis or the development of cor pulmonale.[34,64]

The roentgen appearance of Boeck's sarcoid and certain of the pneumoconioses, including silicosis, is occasionally identical. The nodulation in the miliary form may be indistinguishable from that of silicosis and the pseudo-nodular types of the benign pneumoconioses, and the late fibrous reactions may rarely simulate the picture of tuberculo-silicosis. In all such cases, the differentiation rests upon a critical evaluation of the historical, clinical, and laboratory data. The distinction, however, is usually not difficult, since in sarcoidosis one is commonly led to the correct impression by the presence of marked lymphadenopathy, by irregularities in the distribution and character of the pulmonary lesions, or by the presence of other and extrapulmonary lesions.

Chronic Pulmonary Granulomatosis in Beryllium Workers.—The recognition of a new pulmonary disease appearing in workers engaged in certain industrial processes requiring the use of beryllium, or one of its compounds, is attracting increasing attention. This condition may present in the roentgenogram a pattern strikingly similar to that seen in silicosis. Affected individuals have, as a rule, been employed in the manufacture of fluorescent lamps, fluorescent powder, neon signs, or beryllium copper alloys, or have been engaged either in the extraction of beryllium from the ore or in projects of a research nature requiring the use of its compounds.

At least two rather distinctive and entirely different reactions have been described. The first of these, with which Van Ordstrand and his associates[76] in Cleveland have had the widest experience, is an acute chemical pneumonitis. Its roentgenographic characteristics, however, are entirely different from those of silicosis and require no elaboration in a discussion of the differential diagnosis.

The second type of reaction, recently labeled at the Sixth Saranac Laboratory Symposium as "chronic pulmonary granulomatosis occurring in beryllium workers," has been well described by Sosman and Wilson in a report from Hardy and Tabershaw,[36] by Pascucci,[53] and more recently again by Wilson,[80] and by Robert.[68] Its roentgen manifestations are extremely protean and for adequate description require some attempt at classification. As a consequence, two[53] or three[36] types or stages—granular, reticular, and nodular—are recognized. Granting the possibility that the various bizarre forms of the disease may represent different phases in its evolution, subdivision into types rather than stages would seem wiser until more extended observation enables us to detect a certain general pattern in the developmental cycle. To date, in most cases one is unable to demonstrate a distinct transition from one form to another, and there is no clear-cut gamut of stages through which any given case must pass. In contradistinction, there is some indication, as yet meager, that the types now recognized are all late manifestations and that, prior to the development of chronic granulomatosis, there may be a preliminary and perhaps transitory stage comparable to the acute form but so mild in degree that it escapes recognition.

In all types, the involvement is diffuse throughout both lungs. The granular form presents a generalized stippled or "fine sandpaper" appearance suggestive of pulmonary edema, but closer inspection demonstrates that the changes are distinctly particulate in nature. There is usually no accompanying hilar node enlargement. In certain instances this granularity may serve as a background for a generalized reticulation, comprising the reticular form of Sosman and Wilson.[36] In these there may be an accompanying slight to moderate enlargement of the hilar lymph nodes.

The nodular type, which is of primary concern in the differential diagnosis of silicosis, is characterized by the presence on the roentgenogram of evenly distributed nodular densities throughout the lungs. These vary from 1 or 2 mm. to 4 or 5 mm. in diameter in different persons, but in a given case are generally uniform in size. The tendency to coalescence is usually not well defined, although in some cases there may be a quite definite concentration of the nodulation in the upper lung fields. The hila are frequently indistinct, and may be the site of a pronounced lymphadenopathy.

At the risk of digressing, a brief résumé of the symptoms and clinical course of this so recently recognized disease is offered. Dyspnea, cough, and weight loss, together with a long latent period varying from months to several years prior to onset, are cardinal features. A study of the ventilatory function in advanced cases reveals marked respiratory incapacity, which is in turn regularly accompanied by a secondary polycythemia. Hardy and Tabershaw,[36] report a mortality rate of 35 per cent, but the outcome is not invariably fatal, and some of those cases which it has been our privilege to follow have remained relatively stationary over a period of several years, while others have shown varying degrees of improvement. Too short a time has elapsed to warrant final conclusions, and the ultimate result to be expected in the non-fatal cases is still a matter of conjecture. In any given case, however, attention should be directed to the fact that there is apt to be a striking lack of correlation between the clinical and the roentgen findings.

In autopsy material there is grossly apparent a diffuse thickening of the alveolar septa, usually most marked in the hilar portion of each lobe. Microscopically this is seen to have occurred secondary to a widespread cellular infiltration by macrophages and lymphocytes, with the associated formation of focal lesions in which there has been an obliteration of the alveolar spaces. Multinucleated giant cells of the Langhans' type are usually demonstrable, and the irregular deposition of fibrous tissue within the lesions is a common occurrence.

As long as the granularity so characteristic of the granular and reticular forms of the disease persists, the differentiation of the various nodular pneumoconioses from chronic pulmonary granulomatosis of the type seen in beryllium workers does not present a difficult problem. In the nodular form, however, the roentgen appearance may simulate exactly that of siliocisis and those benign pneumoconioses which exhibit a nodular predominance. In these cases recourse must again be taken to the occupational history and to consideration of the clinical and laboratory findings.

Comment

The remarks above are but a brief account of the story of silicosis and some of the conditions with which it may be confused. There are many avenues of research concerning silicosis still to be explored. The new work of Evans[19] in this country and Barták et al[4] in Italy may provide new approaches to this exceedingly important subject. Every year brings new answers to old problems and new problems to be answered. Until we know the answers to all of the problems concerned with this subject, it behooves us to plan for the worker. Such a plan should include the following requirements:

1. A healthy atmosphere in which individuals work.

2. Preemployment and annual physical and roentgen examinations of the chest in order to demonstrate early tuberculous lesions and exclude such individuals from participating in work that may be harmful to them and their fellow workers.

Summary

1. Attention is directed to the fact that a fluoroscopic and roentgenographic examination of the chest is the most precise method available for demonstrating in the living individual the pathological changes produced within the lungs by the silicosis. The necessity, however, for correlating the roentgen findings with all other essential data before making a definite diagnosis is emphasized.

2. The roentgen manifestations of simple silicosis and of silicosis complicated by the presence of coexisting infection, are detailed. The demonstration upon the roentgenogram of a generalized nodulation throughout the lungs is considered as fundamental to tht diagnosis of silicosis.

3. The differential diagnosis of silicosis and other conditions which may be productive of nodular densities within the lungs is reviewed.

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Case Report

INFANTILE CORTICAL HYPEROSTOSIS

HAROLD W. HERMANN, M.D., AMES W. NASLUND, M.D., and ARTHUR E. KARLSTROM, M.D.
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IN July, 1945, Caffey and Silverman[3] made a preliminary report of four cases with a syndrome they designated infantile cortical hyperostosis. We wish to report another case believed to be of the same clinical entity.

Case Report

M. R., a baby girl, was born at term on January 4, 1950, after a normal spontaneous labor and weighed 7 pounds 2½ ounces. The gestation was accompanied by a mild hyperemesis on the part of the mother in the first five months with consequent dietary restrictions. The last four months antepartum were uneventful and without disease.

The infant was healthy and gained normally the first three months at home. Ascorbic acid and Drisdol had been added at one month. At three months the child was noted to be very irritable and anorexic. Soon thereafter, the parents noted a swelling of the right cheek. There was no known fever at this time. In spite of penicillin therapy, the hyperirritability and mandibular swelling persisted for nearly one month, then receded.

Before the mandibular swelling had disappeared, the irritability and anorexia again returned, followed by swelling of the right forearm.

The infant was first seen at our office on July 27, 1950, which was a few days after the left forearm had noticeably enlarged. The mandibular swelling was scarcely palpable, whereas the forearms were tensely swollen and tender. There was no hyperemia or discoloration of the areas involved. They were not fluctuant.

The child moved her arms slowly and infrequently. She cried when the swollen areas were palpated. Examination of the heart and lungs was negative. The spleen and liver were not enlarged. There was no adenopathy. Rectal temperature was 100.4°F. There were no palpable abnormalities of the thorax or lower extremities.

Laboratory examination revealed a hemoglobin of 55 per cent with 3.03 million red cells. The white count was 11,800 with 33 per cent polymorphonuclear cells, 60 per cent lymphocytes, 4 per cent monocytes and 3 per cent eosinophils. The urine was normal. Sedimentation rate was 8 mm. per hour by the Westergren method. Serology and Mantoux (1:1,000 dilution) were negative. Serum calcium was 9.8 mg. per cent and phosphorus was 5.6 mg. per cent. Alkaline phosphatase was 23.0 King-Armstrong units. Blood ascorbic acid level was .99 mg. per cent.

Roentgen examination revealed massive hyperostosis in the bones of both forearms and moderate hyperostosis of the right mandible. There was no other area of involvement discovered from complete skeletal films. Lung fields were clear and heart size normal.

Mandible films of a three-year-old sibling were also normal.

As of November 9, 1950, the previous areas of hyperostosis have returned to normal size without specific treatment.

Comment

The clinical features, laboratory data and x-ray findings of the case conform with those of cases presented by Caffey and Silverman[3] and Smyth, et al.[12] Basic features are hyperirritability, fever, and roentgenologic evidence of external thickening of the cortex.

This syndrome is usually manifest during the first three or four months of life with the mandible most often the primary site of involvement. From there the distribution and magnitude of swellings varies greatly.

More recently Caffey[2] reported two cases which developed during the second year of life (eighteen months and twenty months). Neither of these young children had mandibular hyperostosis. Of a total of twenty-seven cases reported, the average age of onset is the twenty-fifth week.

The cause and pathogenesis remain undetermined. Bacterial infections, scurvy, rickets, trauma and neoplastic diseases appear to be excluded as causal agents.

Infection as an etiology, is supported by leukocytosis, fever and, in some cases, elevated sedimentation rate, but treatment with the sulfonamides or the antibiotics has met with no significant response. Ross et al[4] reported blood cultures and febrile agglutinations to be negative in ten cases. They also had complete virus studies by the National Institute of Health which all proved negative. Tuberculosis is ruled out by a negative Mantoux and roentgenological findings. Similarly syphilis is ruled out by serology. Also, biopsy specimens have not supported infection as a causal agent but simply show hyperplasia of normal lamellar bone.[10] X-rays fail to show similarity of this syndrome to scurvy or rickets. There is an absence of a zone of rarefaction beneath the epiphyseal line leaving the terminal segments of the shaft unaffected. Also, the age at onset, adequate vitamin C intake and lack of response to cevitamic acid speak against scurvy.

No noncomitant blood dyscrasias have been reported.

Neoplastic disease is ruled out by absence of sarcomatous lesions in reported biopsy specimens and the benign course followed by all reported cases.

Shuman[11] found the disease refractory to antihistaminic preparations and allergy elimination diets.

Delano and Butler[5] report a case occurring within ten days after a smallpox vaccination and postulated that infection was the basis somewhat similar to that of osteomyelitis variolosa. In most of the reported cases, however, there has been no history of antecedent vaccination or immunizations.

There was no evidence of a hereditary factor in this case or previous reported cases except for that of Van Zeben[15] who suggests the possibility in a description of three patients in one family with typical periosteal lesions.

Sherman and Hillyer,[10] in an extensive review of the syndrome in February, 1950, found only twenty-seven

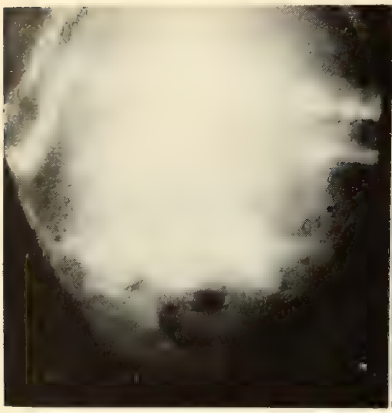

Fig. 1. Showing thickening and increased opacity of right mandible.

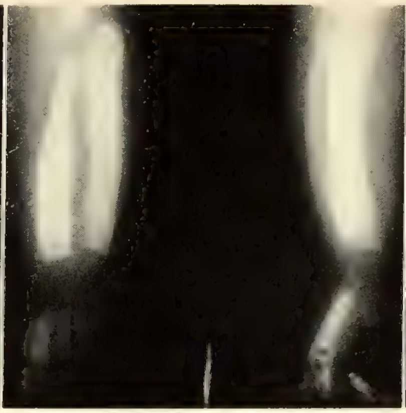

Fig. 2. X-ray of right forearm showing a thickening of both radius and ulna.

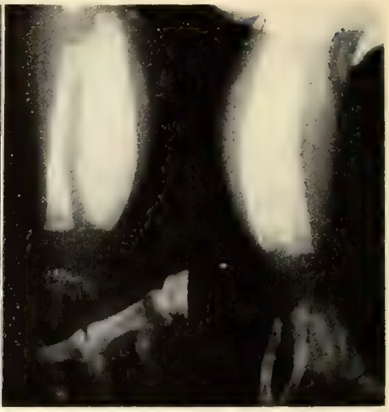

Fig. 3. X-ray of left forearm showing a marked thickening of left ulna alone.

cases reported, of which fifteen were males and twelve were females. There was no preference of race or geographical location. They postulated that the initial disturbance was of the muscle tissue with secondary stimulation of periosteum. Supporting their theory is the lack of periosteal inflammation or hemorrhage and presence of vascular changes and degeneration of overlying muscles.

The soft tissue changes causing tenderness and pseudoparalysis appear to be limited to the muscle groups adjacent to the involved bones and do not extend to the subcutaneous layers.

The sites of predilection seem to be the mandible, clavicles, scapulae, extremities and ribs. Associated with rib involvemment is pleural thickening. Whipple[4] reported a case with the more infrequent site of hyperostosis in the calvarium.

In the absence of any known specific treatment, it is fortunate that all reported preceding cases have run a benign although protracted course to complete recovery. Treatment is symptomatic only. There are frequent remissions and exacerbations during the progress of the disease. However, complete recovery may be expected in three to six months.

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THE RADIOACTIVE EFFECTS OF ATOMIC WEAPONS

(Continued from Page 1087)

radiation sickness. It must be recalled, however, that radiation sickness is responsible for only a small percentage of the deaths occurring after or at the time of a bomb blast. Sixty per cent of the Japanese deaths were said to be from blast, thirty per cent from burns and only ten to twenty per cent to radiation sickness. Much work is being done on blast and burns, so that it may be anticipated that if better methods of treatment for these injuries are at hand, a larger percentage will survive these injuries and the effects of radiation sickness will be more apparent.

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History of Medicine In Minnesota

MEDICINE AND ITS PRACTITIONERS IN OLMSTED COUNTY PRIOR TO 1900

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(Continued from the October Issue)

Alexander Grant (1825-1907), of Scotch descent, was born and reared on a farm in New York. He acquired an excellent academic education, studied medicine for a time at the University of Michigan, and in 1858 was graduated from the Buffalo Medical College, of the University of Buffalo, New York. Shortly afterward he again came west and, after teaching school and practicing medicine in Wisconsin, arrived in High Forest, Olmsted County, in 1859, and there established himself as a physician. He was to remain for twenty-two years. Record indicates that he perhaps came in the hope of improving his health in Minnesota's much advertised climate, for in 1864 he was exempted from military service because of "feeble constitution," and in 1866, appointed as enrolling clerk to the state senate, he was obliged to resign because of ill health.

In the middle sixties, on the failure of Coe and Huddleston, pioneer merchants of High Forest, Dr. Grant bought their stock of goods and thereafter kept a general store as well as practiced his profession, but with less emphasis on medicine as years went by. Other physicians, O. Chase, S. V. Groesbeck, W. G. Bothwell and D. S. Fairchild, came and went between 1866 and 1873. In 1869 Dr. Grant built a two story frame building on the west side of the village green, a structure imposing for the time and place. His store and living quarters were on the ground floor; the large room above became the lodge room of the High Forest Masons. From then well into 1945, when it was razed, the building was known as the Masonic Temple. The mercantile business prospered and for a time in 1872 the doctor published a four-column advertising sheet, the *High Forest Illustrated Sensation,* describing his stock, a publication that the *Rochester Post* praised as a readable and spicy budget of business.

Of keen intellect and scholarly tastes, Dr. Grant was interested in music, literature and floriculture. He wrote and spoke well, was public-spirited, and took active interest in all matters of local enterprise and welfare. He not only organized patriotic celebrations, but was in demand throughout the county and beyond its borders as an eloquent speaker at community meetings, patriotic, political and agricultural. Although he commonly talked extemporaneously, some of his addresses were prepared; namely, certain ones on rabies and hydrophobia, the life and services of Horace Greeley, and the life of Abraham Lincoln. The *Rochester City Post* of July 13, 1867, carried in full his Fourth of July Oration of that year.

A devoted Republican, he was a member of the local central committee and regularly was a representative from the township to the party conventions of county and district. He was an organizer and the secretary of the local National Loyal League, in 1863, and an active member of the local Grant (Ulysses S.) and Wilson Club in 1872. Until 1875 he served as a petit juror of the United States District Court in St. Paul.

For some eight years he was known in medical circles, as a member of the

Olmsted County Medical Society from 1868, and of the Minnesota State Medical Society from 1872 through 1876. He was admitted to the state society together with Dr. G. W. Nichols, of Rochester, and Dr. A. W. Stinchfield, then of Dundas, at a meeting held in Rochester on June 11 and 12, 1872, during the presidency of Dr. W. W. Mayo.

Dr. Grant has been described by an early resident of High Forest who knew him well, as a short, slight, wiry man, of medium coloring and keen gray-blue eyes, who wore a small mustache and short side whiskers that terminated in a small goatee. His invariable formal costume was a suit of pepper-and-salt worsted with black velvet collar and cuffs, worn with a white collar and black tie. As time went on, certain eccentricities in his manner of living and a disregard of the niceties in his bachelor housekeeping became ingrained. In later years, when the doctor had removed to Dakota, an old friend from High Forest stopped off to see him. He was living in a dingy little general store. The combination heating and cooking stove in the center of the room was surrounded by the traditional basebox filled with sand, and the sand was covered with little heaps of coffee grounds and egg shells; the doctor told his caller that he cleaned it up periodically. In High Forest, although the citizens were amused by his peculiarities, they had affection for him and respect for his intellectual attainments.

In the summer of 1880 Dr. Grant made his first trip to Dakota Territory and in the autumn of 1881 he left permanently for the "Jim River country." After a few years in Groton, Brown County, he moved a few miles west to Bath, in the same county, where he spent the remainder of his life. He registered as a physician in Dakota on December 10, 1887, then in Bath. He died in 1907; he had never married.

George A. Gustine, a graduate physician and surgeon of some years' experience, came to Rochester, Minnesota, with his wife and children from Saratoga Springs, New York, in May, 1881, primarily to benefit his health and to visit his relatives who were established here. Liking the place and the climate, he entered medical practice, at first having his office and residence in rooms on the second floor of the Heaney Block, on Zumbro Street, over G. Stocking's Crockery and Glassware Store. Later the residence was on Grove Street. In April, 1882, Dr. Gustine returned with his family to Saratoga Springs.

Dr. Gustine was one of the seven children of Francis Gustine and Sophrinia Sexton Gustine, who for many years were respected citizens of Rochester. Mr. and Mrs. Gustine were pioneers in New England, living first in Winchester, New Hampshire, and later in Medford, Massachusetts; subsequently they were in Luzerne, New York. From Luzerne they came to Minnesota in 1879 accompanied by several of their children. A son, Levi S. Gustine, spent his life in Rochester and is survived by resident children and grandchildren. A daughter of Mr. and Mrs. Francis Gustine, who was married to A. D. Twiss, in Luzerne, came with her husband to Plainview, Wabasha County, in 1880 and to Rochester in 1881; survivors of Mr. and Mrs. Twiss in the city are a daughter, Mrs. C. M. Judd, a son, A. G. Twiss, and four grandchildren. A younger daughter, Sadie Gustine, was married in Rochester in the eighties to Nevin C. Pollock. Mr. and Mrs. Pollock, after eleven years in Evansville, Minnesota, returned to Rochester and lived there the remainder of their lives. They were survived by three children, all of Rochester: Madge (Mrs. Vernon) Gates (since deceased), Laura (Mrs. Frank C.) Jacobs, and Dr. Lee W. Pollock (1887-1947), of the staff of the Mayo Clinic.

John Haggard (1809-1875) was one of the earliest physicians in southeastern Minnesota, briefly in Olmsted County, near Rochester, in late 1856, and in that year and for some time subsequently at Fairpoint, Cherry Grove Township, Goodhue County, across the border from Concord, Dodge County. Biographical notes about him properly belong in a story of early medicine in Goodhue County; because information regarding him did not come to light until late in 1947, several years after notes on physicians of Goodhue County had been published, a brief sketch appears here. The writer is indebted to Dr. George D. Haggard, of Minneapolis, a nephew of Dr. John Haggard, for helpful response to her inquiry.

John Haggard, born on October 30, 1809, in Madison County, Kentucky, was the eldest child of David Haggard, a farmer, and Elizabeth Gentry Haggard, who came from a prominent Kentucky family. Both Mr. and Mrs. Haggard were of English extraction. They and their thirteen children were Baptists; later they all became Disciples of Christ. From Kentucky David Haggard moved with his family, in 1839, to a farm home two miles north of Peosta, Iowa, in Dubuque County.

In giving something of family history Dr. George D. Haggard wrote: "My father and mother, David and Mary Haggard, came to the Territory of Minnesota in November, 1856, stopping first near the present location of Rochester. While her husband turned back of necessity, she waited there in a tent with her three boys, with an axe at hand on the tent flap. The wolves serenaded her for three nights." When the husband returned, he was accompanied by his brother, Dr. John Haggard, who went on with the family to Fairpoint, Goodhue County; in that little community several other families, of Haggard brothers, and sisters, soon settled. There, in January, 1857, the doctor officiated at the birth of his nephew, George D. Haggard (the fourth child in a family of ten) who was born during a raging blizzard, in a log cabin that as yet lacked a roof. Mary Haggard, her son recalled, "had considerable skill in the use of herbal remedies and in the cure of the sick. She answered the calls of her neighbors on the frontier but did not consider herself a practitioner nor did she charge for her services." In those days there was much freighting from Red Wing and Pine Island, and David Haggard had the fastest team of oxen in his community. During his residence at Fairpoint he was postmaster, under President Buchanan. This family in 1862 returned to Iowa and in 1863 settled in Eau Claire, Wisconsin. In 1893 George D. Haggard was graduated in medicine from the University of Minnesota and in that year began his long practice of more than fifty-five years in Minneapolis.

About his uncle, Dr. G. D. Haggard continued:

> I do not remember my Uncle John. I do not know about his academic and professional training, but he was a man of ability and integrity. He practiced in Fairpoint and vicinity in 1856-1857 (perhaps longer), and made a number of amputations because of frozen hands and feet in that severe winter.
>
> Dr. Haggard, according to his sister, Nancy Haggard Smith, was in the Black Hawk War. Two younger brothers, Thomas and James, were in the Civil War; the father in the War of 1812; and the grandfather in the War of the Revolution.
>
> His oldest son, David, who died in 1931, spent his latest years in Algona, Iowa; one of the doctor's grandsons, John W. Haggard, son of David Haggard, is editor of a newspaper there, the Algona *Upper Des Moines*.
>
> Dr. John Haggard was married to Elizabeth Lyman on February 27, 1837, and to Irena Shaw in 1849. He died on February 18, 1875.

L. Hall was listed in the *Minnesota State Gazetteer and Business Directory* from 1880 through 1885 as a physician of High Forest, Olmsted County.

Actually the Reverend Levi Hall came to High Forest some time in 1878 as a

Methodist clergyman. In 1879 he became one of the instructors at the High Forest Seminary, a Methodist school of merit in its day.

Born in Delaware County, Ohio, on October 26, 1833, the son of a farmer, Levi Hall obtained a college education and at the age of twenty years became an ordained minister and revivalist. He was one of the original circuit riders of southern and southeastern Ohio. In 1872 he was transferred to the Minnesota Methodist Conference, and in the next years served pastorates at Austin, Minneapolis, Litchfield, Dover and High Forest.

In his circuit-riding days he often found it necessary to give aid to the sick, and the need for such treatment and his natural aptitude for healing led him to study medicine privately for many years. In 1881, then in his forty-eighth year, on taking superannuated relations in his conference (*A History of the Methodist Episcopal Church in Minneapolis and St. Paul.* By the Rev. J. Wesley Hill. 1895.), he determined to complete his medical education. He enrolled that year at the Hahnemann Medical College of Chicago, from which he received his degree of doctor of medicine in 1882; a fellow graduate in the same class was his son, Dr. Pearl M. Hall. Dr. Levi Hall returned to Minneapolis, where he had established his home in 1881, and in that city for the next thirty years he was a well-known and respected physician. He died at his home on March 22, 1911.

H. H. Herzog was the sixteenth appointee, as an assistant physician, on the staff of the Rochester State Hospital, in Rochester, Minnesota. A graduate of Rush Medical College in 1893, he came to Rochester from Minneapolis, where he had been serving as an intern at St. Mary's Hospital, and entered on his duties on December 1, 1893.

After he had been six months in Rochester, it was announced in the local press that Dr. Herzog had resigned his position to accept a similar place at the Wisconsin State Hospital for Insane at Mendota, Wisconsin. Apparently he changed his plans, since he continued for some years as a member of the hospital staff in Rochester. At a meeting of the Southern Minnesota Medical Association held at Rochester on August 1, 1895, Dr. Herzog was unanimously elected to membership; since a prerequisite to admission was membership in a local county medical society, it is assumed that he earlier had become a member of the Olmsted County Medical Society.

On March 27, 1899, Dr. Herzog resigned from the state hospital to enter private practice. Rochester newspapers commented that his home was in Racine, Wisconsin; that he would attend clinics at St. Mary's Hospital, Rochester, for a month; that he had been offered a position as lecturer at the Chicago Medical College but that he was doubtful about accepting because he was resigning to practice privately. "He is a physician of exceptional ability as well as one possessed of mental qualifications of no ordinary kind." In April, 1899, he went to Waterville, Minnesota, as locum tenens for Dr. O. M. Justice, who at one time had been an orderly at the Rochester State Hospital, with the idea of remaining in Waterville or of settling in Minneapolis.

Dr. Herzog is remembered well by citizens of Rochester. It is said that he died from angina pectoris. Probably his death occurred prior to 1906, since his name does not appear in the first edition of the directory of the American Medical Association, which was compiled in that year.

Oscar C. Heyerdale (1873——), who was born in La Crosse, Wisconsin, on May 6, 1873, has been (1950) a resident of Rochester, Minnesota, with the exception of one year, since he was eleven years old. Since 1898 he has been a physician of Minnesota, and since 1899, of Olmsted County. The twenty-fifth appointee, as an assistant physician on the staff of the Rochester State Hospital, he began his work in the institution on July 13, 1899; from August, 1912, to July, 1937, he was assistant medical superintendent.

The parents of Oscar C. Heyerdale were born in Norway. His father, Hjalmar Heyerdale, was educated as a pharmacist in Oslo, came as a young man to the United States, and settled in La Crosse, Wisconsin. There he was married to Sophie Wilhelmina Emerson. Some years later he moved with his family to Blue Earth, Minnesota, where he owned and operated a drug store. In the summer of 1884, after her husband's death, Mrs. Heyerdale with her three sons, Elmer W., Oscar C. and Frederick, came to Rochester; she died in Rochester on July 19, 1926. Of the sons, Oscar, as stated, and Frederick became permanent residents of the city; Elmer W. Heyerdale, a pharmacist, in 1947 had been for many years in Minneapolis.

Oscar C. Heyerdale obtained his preliminary education in the grade schools and the high school of Rochester. Before entering on his medical training, he was for four years a clerk and assistant pharmacist at the Weber and Heintz Drug store in the city. After one year at the medical school of the University of Minnesota, he transferred to the medical department of Northwestern University, making the change on the persuasion of his friend and classmate, Henry S. Plummer, of Racine, Minnesota, who insisted that they both go to Northwestern to take advantage of the extensive clinical material and the excellent training available there. At that time Northwestern University was one of the few institutions in the country offering a medical course of four years. The two friends were graduated in June, 1898, in a class of eighty-six students.

Immediately out of medical school Dr. Heyerdale began his initial practice in Plainview, Wabasha County, in association with the well-known pioneer physician, Dr. Nathaniel S. Tefft. He received his Minnesota license on October 11, 1898.

At the end of a year's general medical and surgical experience Dr. Heyerdale accepted his appointment to the staff of the Rochester State Hospital. A memorable assignment early in his work with the insane resulted from an abrupt change in arrangements for returning two patients to their homes abroad, one to Norway, the other to Sweden; on one day's notice the young physician started with the two insane persons on an eventful trip of seven weeks and 13,000 miles.

After twelve years as physician in charge of the wards for women at the state hospital, Dr. Heyerdale became assistant medical superintendent, succeeding Dr. Robert McE. Phelps, resigned, and in this capacity he served ably for twenty-five years. Gradually failing eyesight over a long period ultimately caused his retirement, in July, 1937, from his official position and from the scientific field in which he had won distinguished recognition as physician and humanitarian.

Throughout his professional career Dr. Heyerdale has been active in medical organizations. While in Plainview he became a member of the Wabasha County Medical Society and the Southern Minnesota Medical Association. Soon after coming to Rochester he was enrolled in the Olmsted County Medical Society (was once its president), the Minnesota Southwestern Medical Association, the Minnesota State Medical Association, the American Medical Association and the American Psychiatric Association. He is a Mason, member of the Halcyon Chapter (Worshipful Master in 1907-1908, High Priest in 1911) and of the Knights Templar. He is a vestryman of the Calvary Episcopal Church. For many years he served on the Rochester Park Board.

On June 10, 1903, Oscar C. Heyerdale was married to Gertrude Wentworth, of Rochester. Gertrude Wentworth was born in Janesville, Wisconsin, a daughter of William Cooledge Wentworth, a native of Madison County, New York, and Mary Elizabeth Moran Wentworth, a native of Jamestown, Ohio. Mr. Wentworth, at one time a railroad man, was for many years a hotel proprietor in various states of the Middle West and the West; for a few years prior to his death, in February, 1907, he lived in Spring Valley, Fillmore County. Mrs. Wentworth survived him thirty-two years and died in Rochester on September 21, 1939.

Dr. and Mrs. Heyerdale had three children, Elizabeth, who died in infancy in 1904, William Wentworth, and Louise. Dr. William Wentworth Heyerdale, a physician on the staff of the Mayo Clinic, served in World War II as a captain in the United States Army Medical Corps. He died on New Caledonia Island, in the South Pacific, on March 11, 1944; he is survived by his wife, Melanie R. Heyerdale, and three children, Melanie Anne, Sally and William S. Heyerdale. Louise Heyerdale (died, January, 1948) was married to Dr. William J. Martin (Lieutenant Commander, United States Navy, during World War II), of Louisville, Kentucky. Dr. and Mrs. Martin had three children, William J. Martin, III, Robert Heyerdale Martin, and Louise Wentworth Martin.

Mrs. Mary Hicklin, an eclectic practitioner, came to Rochester from Red Wing, Minnesota, in August, 1863. In her professional card, in the *Rochester City Post* of August 22, 1863, she announced to the public that she expected to treat all diseases with success, especially typhoid fever and dysentery; that she would treat all chronic diseases with electricity; and that she possessed one of Prof. W. P. Well's Electropathic Batteries. Her headquarters were at the Stevens House. It is assumed that her stay in Rochester was not long.

Alonzo Ward Hill (1851-1924), an early physician of Olmsted County, Minnesota, was born on December 7, 1851, near Logansport, Indiana, a son of Levi Pervine Hill and his second wife, Christena Tilden Hill. In 1856 Mr. and Mrs. Levi P. Hill came to southern Minnesota with their four children, John W., Alonzo Ward, Margaret and Sarah. In Dodge County, where they first settled, a third son, Benjamin Franklin was born. In 1860 the family established their home in Oronoco, Olmsted County. Early Oronocans have recalled that Mrs. Hill was a capable practical nurse, who gave much aid to the community in those years when physicians were few. Her father, William Tilden, practiced medicine in Ohio and in Peru, Indiana, and came to Minnesota in 1855; record has not appeared that he was a practitioner in this state.

In 1856 the Hill family had been pioneers for generations. John Hill, father of Levi P. Hill, was born in the East and came early to Indiana; his wife was Sarah Watt, who came to America with her parents, William and Unity Brown Watt, from Balygonney, North Ireland, in 1791 when she was three years old. John Hill was killed by a falling tree on his farm near Logansport, Indiana, on February 14, 1842, in his fifty-third year, and was buried in the churchyard of Spring Creek Christian Church, near Logansport; in the same plot are the graves of his daughter, Unity Melissa Hill Thompson, who died in 1860, and of his daughter-in-law (first wife of Levi P. Hill), who died in 1849. Some years after her husband's death Sarah Watt Hill joined her relatives in Oronoco, Minnesota; her grave is in the village cemetery.

Alonzo Ward Hill was educated at the village school of Oronoco and at the high school and Niles Academy in Rochester, as were other members of the family. After his graduation from the University of Michigan with the degree of doctor of medicine, in March, 1876, Dr. Hill spent a few months in Oronoco before entering into medical practice in the village of Pickwick, Winona County. From Pickwick he removed to Pleasant Grove, Olmsted County, some time in 1878; in November of that year he was married to Mattie Doris Cox, daughter of Ferdinand Cox, pioneer merchant, in 1855, of Pickwick.

In Pleasant Grove Dr. Hill operated a drug store and for eleven years practiced medicine in the village and its surrounding community. In 1882 he served as county physician for his region; on May 7, 1884, he received his Minnesota State license, No. 900 (R), under the medical practice act of the preceding year. There have been noted occasional references to his activities as a delegate to Republican county conventions.

In the late autumn of 1889 Dr. and Mrs. Hill and their only child, Mabel Ione, departed for Oregon, where they lived first in Milton and subsequently in Freewater, returning to Minnesota occasionally on business. In 1913 Dr. Hill retired from medical practice to operate his drug store. He died at Freewater on June 26, 1924. His wife, Mattie Cox Hill, died on July 31, 1944. In 1945 the survivors of Dr. and Mrs. Hill were their daughter Mabel Ione Demory, six grandchildren and six great-grandchildren.

Edgar Augustus Holmes (1852-1897) was a physician and surgeon in Olmsted County from June, 1880, to April, 1888, for a few weeks in Eyota, his boyhood home, and for eight years in Oronoco.

Born on January 20, 1852, in Chilmark, Martha's Vineyard Island, Massachusetts, he was the son of Augustus Holmes and Almira Daggett Cottle Holmes. Augustus Holmes was a sea captain on one of the old time whaling ships and made long voyages, once from New England around the Cape and north to Alaska, that were sometimes years in duration. He did not see his son until the child was two and a half years old and then, family anecdote relates, the little boy said to his mother, "Who is that strange man, Mum?"

When Edgar Holmes was a small boy, the family immigrated to the vicinity of Sheboygan, Wisconsin, where the father became a farmer and the son attended the grade schools and the high school of the town. About 1868 a second remove was made, to Eyota, Olmsted County, Minnesota, and there at the age of sixteen years Edgar Holmes began teaching country school; in 1876 he was one of the three teachers in Eyota's new school building. After nine years of pedagogy he entered on the study of medicine under the preceptorship of Dr. A. W. Stinchfield, of Eyota, who in his long career inspired and helped many young men to qualify for the medical profession. In June, 1880, Dr. Holmes was graduated from the Chicago Medical College and returned to Eyota for a few weeks before going to Oronoco, where a practice was being held for him by his undergraduate classmate and roommate at medical school, William A. Vincent *(q.v.)*. On the death of Dr. John N. Farrand, of Oronoco, by drowning on June 23, 1880, Dr. Vincent, who was employed for the summer at the state hospital for insane at Rochester (later as assistant physician), hastened to hang out his shingle at Oronoco, both to serve the people and to hold the field for Dr. Holmes.

By August, 1880, Dr. Holmes was established in Oronoco with his wife and their two small daughters; a third daughter was born in Oronoco in 1887. He had been married in 1873 to Harriet Eckles, of Eyota, one of the thirteen children of William Eckles, who originally was a skilled shoemaker, and Mary Ann Pears Eckles, early pioneer farmers in the township. Mr. and Mrs. Eckles and two small children came from Yorkshire, England, to America in 1850 by sailing vessel, a tedious voyage of twelve weeks and of many hardships. They settled first on a farm near Ripon, Wisconsin; there Harriet Eckles was born on May 4, 1854; two years later the family came by wagon to a homestead claim in Eyota Township.

In Oronoco Dr. Holmes had an arduous practice of medicine, surgery and, occasionally, dentistry, under all the difficulties of the time, in a territory that soon extended as far as Genoa and Greenwood Prairie in Olmsted County, and to Elgin and Mazeppa in Goodhue County; for a while in the late eighties he maintained an office two days a week at Mazeppa. Early in the Oronoco years his office was in James Barnett's drug store; later and for the greater period, in his own residence. In surgical emergencies his wife sometimes acted as his assistant.

Dr. Holmes has been described as a tall, well-built man weighing 213 pounds, of medium coloring, with curly brown hair and clear gray eyes, and pre-eminently as kind, sympathetic, quiet, dependable, tolerant and charitable. He won confidence and affection and, although he refused public office except as a member of the school board, it is said that the community never was more united than in the years that he was a resident of Oronoco. He neither smoked nor drank; his temper was always under control; if he said something was "cussed," it was recognized that matters were serious. He and his wife were members and generous supporters of the Presbyterian Church and for some years Mrs. Holmes was superintendent of the Sunday school. The doctor was a member of the local Masonic lodge and of other fraternal organizations. In the late eighties he was for several years co-editor of the *Pine Island Journal,* of Goodhue County.

Dr. Holmes held the esteem of the medical profession of county and state as a physician of ability and integrity. He was an active member of the Olmsted County Medical Society, the Minnesota State Medical Society (from 1882; elected third vice president in 1886) and the American Medical Association. Among his contributions to the medical literature was a paper, "Lithaemia," which he read on November 9, 1886, before the county society. It was published in the *Northwestern Lancet* of December 1, 1886; the original manuscript remains in the possession of his family. During much of his residence in Oronoco he served as county physican in Oronoco, New Haven and Farmington Townships. He was licensed in Minnesota on January 10, 1884, receiving certificate No. 679 (R).

On April, 1888, because of better professional and financial opportunity, Dr. Holmes removed to North St. Paul to enter partnership with Dr. Nathaniel S. Lane, who from 1882 to 1888 practiced medicine in Eyota; after 1894 for some years Dr. Lane was in Winona. Oronoco, in July, 1888, advertised for a good doctor at an early date; in December Dr. Charles Q. Scoboria, from Elk River, settled in the village.

After nine useful years as citizen and physician in North St. Paul Dr. Edgar A. Holmes died on August 8, 1897. He had been in failing health since 1895, when he had suffered a paralytic stroke. Mrs. Holmes lived to the venerable age of ninety years and died at her home in North St. Paul on May 23, 1944. One daughter Stelle Mabel, had died in 1889. In 1946 there survived two daughters, Myra May (Mrs. Edward) Michel, of North St. Paul, and Lulu Irene (Mrs. Roy) Allis, of Oronoco, four grandchildren and two great-grandchildren.

(To Be Continued in the December Issue)

President's Letter

ARMS AND THE MEDICAL

Post-Korean problems and the continuing war of preparedness require that the medical profession assume a heavy share of responsibility in the months and, perhaps, years ahead.

Never before, in the history of our country, has it been found necessary to pass a special law, providing for the registration, classification and induction of physicians and other allied specialist groups; but Public Law 779 is now on the statutes, by Presidential Proclamation of October 10. Minnesota's first registration, October 16, brought some 400 names on the Selective Service list, and future registrations, slated to be held before January 16, 1951, will bring in hundreds more of prospective draftees.

A chain of advisory committees, beginning with the National Advisory Committee, appointed by the President, has been established. The National Committee, in turn, appointed state advisory committees and, in Minnesota, the state advisory committee requested the Minnesota State Medical Association to establish a central committee and for each county medical society to establish a committee.

The county medical society advisory committees are to serve as liaison groups with local selective service boards, as well as to advise these boards regarding individual classifications and the policies established by the National Advisory Committee.

In outline, this chain of advisory groups will operate in much the same manner as Procurement and Assignment procedures of World War II.

If the system is to prove efficient and in the best interests of each community, the state as a whole, and the profession, it will require the co-operation of every physician.

Questionnaires have been mailed to registering physicians and these are being returned to the State Office for referral to advisory committees. Facts about the physician and the community he serves will have a bearing on his classification. Complete information will aid these committees in giving the greatest assistance to the military services without impairing the health of the civilian populace.

J. J. Elias.

President, Minnesota State Medical Association

◆ Editorial ◆

CARL B. DRAKE, M.D., *Editor;* GEORGE EARL, M.D., HENRY L. ULRICH, M.D., *Associate Editors*

REGISTRATION AND INDUCTION OF PHYSICIANS

PHYSICIANS as well as laymen can be excused for their lack of enthusiasm for exchanging their civilian life for the military. Those who served during the war and had their normal peaceful lives disrupted have the feeling they have done their duty and are loath to don the military after a mere five years of civilian re-establishment. Those who have never served having also been loath to volunteer a program had to be developed which would be as fair an apportionment of a distasteful job as was possible. Those who have never served are to be called first and those in the reserve last—as far as is reasonably possible. The present plan seems as equitable as possible although there are bound to be inequalities develop here and there.

On October 16 physicians (and dentists) who had obtained their medical (and dental) education through ASTP or V-12 or who were deferred for educational reasons and who had had less than twenty-one months of service were required to register.

According to newspaper reports 113 physicians registered in Hennepin County, forty-one in Ramsey, ninety-seven in Olmsted (Rochester), nine in Cook (Duluth) and one in Blue Earth County (Mankato) on this date.

The World War II system of procurement and assignment of physicians has been revived, and each state will have its committee composed of a physician, dentist and representative of the state public health department (the physician to be chairman) to work with the National Advisory Committee in the selection of doctors, dentists and allied specialists in Washington.

Those who received their training at the expense of the government and who have served less than ninety days are First Priority. Those who have served more than ninety days and less than twenty-one months are classed as Second Priority. Although both First and Second Priority groups registered, the First Priority will be processed first. Registration dates for all other physicians under fifty and not in military reserves will be sometime before January 16, 1951, and will constitute a future priority.

Indications are that inductions will not be made in large numbers until late in December, and registrants will be allowed twenty-one days to settle personal affairs before being inducted.

Fewer World War II reserves than anticipated will be called into active duty within the next few months and these for only three or four months in most cases rather than for the full twenty-one months. World War II reserves will be utilized only until non-veteran replacements can be mustered into service and it is said that an effort will be made to return veteran reservists to civilian life as fast as possible. Exceptions to this relaxed policy will be certain senior officer specialists and senior command and staff officers whom it will be difficult to replace.

The army is undertaking to offer a reserve commission to every registrant at the time he takes his physical examination and before his induction. Further, physicians can volunteer for any military service before they are inducted and receive the $100 monthly bonus pay which goes with volunteers.

This seems to be the present status as to Uncle Sam's requirements of the medical profession. What the future weekly bulletins will contain or what the future will require is unpredictable. One thing is certain. We must arm for defense on such a scale that none will dare attack us. If the enemies of free people eventually see the futility of living in a world armed to the teeth, we shall all be able to revert back to a peaceful footing.

GOOD DOCTORS AND BAD MEDICINE

IT should be unnecessary to state that the most important function of the American Medical Association is the preservation of the nation's health. The Association endeavors to carry out this objective in many ways. Probably the most valuable of these is protection of the public against exploitation of remedies that are worthless or of doubtful value. This function is carried on by the Council on Pharmacy and Chemistry which carefully investigates the therapeutic value of all drug products submitted to them. If a therapeutic product is found to meet the claims made for it by the producer, it receives the Council's seal of approval and the drug is so advertised in official medical journals. This would seem to be a simple and practical way to protect the public by guiding the physician in selecting drugs of proven merit. One might expect that the medical profession would be unanimous in supporting the AMA in this most important activity. Sad to relate, however, this is not the case.

Although most state medical journals advertise only those drugs which have been approved by the Council of the AMA, there are several state and county medical associations which do not. In fact, in some of these medical journals a large part of their advertising columns is taken up with unapproved remedies. The reason for this is obvious. Instead of balancing the budget of state and county medical societies by adjusting membership dues, the officers stoop to accept income from questionable advertising in their medical journals.

Advertising of pharmaceutical products that are not accepted by the AMA is not confined to state and county medical journals. The official publications of several national societies also contain many pages of sub-standard advertising. In recent numbers of the official journal of a well-known society, more than 60 per cent of the advertisements were unapproved by the AMA. Even more reprehensible is the fact that this same medical organization permits the display of these doubtful remedies in the commercial exhibits at its annual meetings. The contrast between information offered by excellent scientific articles in some of these journals and misinformation contained in the advertising pages should arouse the callous editorial conscience.

There are also the so-called "throw-away" medical journals. These periodicals are printed by commercial publishers who distribute them gratis to members of the medical profession. They depend entirely upon their advertising columns for income. It is no wonder that they are lucrative since their pages are filled with ads of remedies unapproved by the AMA as well as some that are so shady that even lay newspapers might hesitate to accept them. Members of the medical profession are lured to read these journals by means of handy abstracts of recent medical papers dished up in attractive form or by articles on economic problems of medical practice. One might expect the intelligent physician reader would disregard doubtful advertisements. The astute publishers know, however, that the medical reader fails to distinguish the approved products from the unapproved and falls for catchy advertisements just like his lay brother.

One of the phenomenal developments of our time is the enormous number of new drugs and therapeutic agents that are constantly being offered to the physician by drug manufacturers and by research laboratories. Some of these products have the therapeutic merit claimed for them by the producers; others do not. Some are definitely harmful and these should be so labeled before they are put on the market. The need for an impartial and disinterested authority to examine new drugs and verify the claims made for them by the manufacturers is self-evident. The AMA generously assumed this function at no little cost to itself by creating the Council on Pharmacy and Chemistry in 1905. The Council consists of seventeen outstanding scientists and a full-time secretary. It has an extensive chemical laboratory available in AMA headquarters. In order to expedite their investigations and render their decisions more accurate, the Council has been aided in recent years by a representative group of specialists called the Therapeutic Trials Committee. The members of the Council work without remuneration and have faithfully carried out their responsibilities over the years at a great sacrifice of time and effort on their part.

The average physician does not realize how much the Council has done to raise the standard of American medicine to its present high level. It is constantly offering practical as well as scientific information concerning every new pharmaceutical product that has therapeutic value. It has been responsible for many special articles, giving a summary of wide clinical experience. It has embodied this mass of information in several books such as "New and Non-official Remedies" and others. The Council also has encouraged research for new and better therapeutic products. In fact, it has been the stimulant for the outstanding research carried on in many scientific laboratories including those of the American Pharmaceutical Industry. It may well be said that the work of the Council alone would justify the existence of the American Medical Association.

Let us see first if there is any logical reason why approval of drugs by the Council on Pharmacy and Chemistry should be disregarded. Is it true, as has been claimed, that legitimate products have been turned down? Is it true that the delay sometimes caused by thorough examination of a drug is unfair to its manufacturer? Is it necessary to depend on the Council for investigation in order to determine the value of a drug? Would not the experience of a practitioner who employed the drug be of equal value? These are some of the critical questions put by commercially minded medical organizations and by manufacturers of unapproved products. Although formerly there was some delay on the part of the Council in completing its investigation of a product, that has been corrected. Prolonged delays almost invariably are due to failure on the part of the manufacturer to submit sufficient data to substantiate their claims or that are necessary to carry on investigation. A product which is submitted with necessary information can be accepted by the Council within a period of six to ten weeks. In fact, if necessary, the Council can complete consideration of a drug within two or three weeks. The claim that the limited personal experience of a practitioner, without laboratory control, is just as good as the thorough clinical and laboratory investigation made by the Council, aided by a group of experts in the field involved, is of course ridiculous.

Many of the larger and well-established producers of pharmaceutical products co-operate with the Council and abide by its rules in obtaining acceptance of their new preparations. In fact the American drug industry deserves great credit for the scientific methods employed in the manufacture of their products and for the high standards of research conducted in their laboratories. Unfortunately, however, there are many members of the drug industry who do not abide by the Council's rules of acceptance. In fact, the group of drug manufacturers who flagrantly disregard the Council's efforts are increasing in number and in influence. Aided by officers of medical societies who place profit above principle and by throw-away medical journals, they find that they are able to bootleg their wares successfully. Unless their efforts are blocked, they threaten to undermine the work of the Council.

There are many loyal members of the AMA who recognize the need and value of the Council and yet they sabotage it by prescribing unapproved drugs. There are physicians with outstanding professional reputations who allow their names to appear on editorial boards of medical journals which are loaded with advertisements of unapproved drugs. Other outstanding physicians allow their names to be listed as officers of medical associations that sponsor such journals. These men are used as fronts, and in that capacity they indirectly lend endorsement to the character of the journal including the advertising pages.

The medical profession can limit traffic in uncertified drugs by refusing to prescribe any drug that does not have the seal of approval. The officers of transgressing medical associations, the editors, the scientific contributors, and even the subscribers to mercenary medical journals should scrutinize the advertising columns, and if unapproved drugs are displayed, they should register their objections. A wide-spread movement of that kind would soon correct the misleading and mercenary advertising now published in many medical journals. The public would approve of such action and it would be a tremendous boost to our public relations. Such action also would be of great aid in starting a sadly needed house cleaning in the advertising columns of the lay press and in the radio. These lay transgressors can point in defense to similar conditions now existing in the advertising pages of medical journals. The medical profession must proceed immediately to clean its own house. It can do so by two ways: by prescribing only those pharmaceutical products that are certified by the Council and by forbidding advertisement of unapproved drugs in its medical journals.

William F. Braasch, M.D.

LUETIC AORTITIS

Attention has been called of late to another sign which is apparently quite diagnostic of luetic aortitis. Jackman and Lubert were the first to call attention to the significance of a linear appearing calcification in the ascending aorta in the x-ray film. It has been shown by these authors,[1,2] and others[3] that a large percentage of individuals showing this type and location of calcification have luetic aortitis.

It is known that lues has a predilection for the root of the aorta. Whether the calcification in this area represents a healing of the luetic process in this area or is a sequel of an arteriosclerotic process in this area initiated by syphilis is not known and is perhaps not important. The important point in differentiation is that calcification accompanying simple arteriosclerosis appears blotchy in the x-ray film and is located beyond the root of the aorta.

While this linear appearing calcification in the root of the aorta is practically diagnostic of late syphilitic aortitis, its absence is not significant. In the presence of this x-ray shadow the diagnosis of syphilitic aortitis can be accepted until proven otherwise.

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1. Jackman, J., and Lubert, M.: Significance of calcification of the ascending aorta as observed roentgenologically. Am. J. Roentgenol., 53:432, (May) 1945.
2. Jackman, J.: Syphilitic aortitis. Pennsylvania M. J., 53:972, (Sept.), 1950.
3. Leighton, R. S.: Calcification of the ascending aorta as a sign of syphilitic aortitis. Radiology, 51:257, (Aug.) 1948.

LESS SYPHILIS

THE report of the Committee on Syphilis and Social Disease of the Minnesota State Medical Association submitted to the House of Delegates at Duluth in June merits emphasis not only because it indicates a marked reduction in the incidence of syphilis in Minnesota in recent years but because it emphasizes one very important point in the medical care of syphilitics. All patients treated for syphilis should have a spinal Wassermann test performed during or at the conclusion of treatment. A spinal examination becomes a "must" for any patient whose blood Wasserman persists as positive after an adequate course of treatment or over a period of five years. This is, of course, the only way asymptomatic neurosyphilis can be diagnosed, and the importance of making the diagnosis lies in the fact that asymptomatic neurosyphilis can in many instances be successfully treated with penicillin. Such successful treatment obviates the necessity in these instances of long periods of hospitalization for tabes and paresis at a later date and constitutes a great saving financially for the state, to say nothing of a much better outcome for the patient.

The reduction in the incidence of syphilis in Minnesota during the past thirty years—the incumbency of Dr. H. G. Irvine as director of the Division of Venereal Diseases of the State Department of Health—is almost unbelievable and is a tribute to Dr. Irvine and his associates. In 1925 some 4,300 cases of syphilis were reported in the state. Since then the number reported yearly has shown a steady decline, except for an occasional increase, until last year when only sixty-nine cases of early syphilis were reported. Since 1940 the average number of new cases reported yearly has been 301, the higher than average number reported in 1946 being doubtless due to the return of the soldiers from the war.

On the other hand not enough spinal Wassermann tests are being performed. In 1948 a total of 488 latent or late syphilis cases was reported but only 202 had any record of a spinal fluid test. In 1949 out of a total of 422 such cases only 160 had spinal tests.

While there were thirty-one cases of congenital syphilis reported in 1949, only one of these was a child born in 1949, thirty having been born previous to that year. Only one congenital syphilitic out of 73,627 live births in 1949 is something to be proud of.

So satisfactory is the penicillin treatment of the disease in all its phases that the state is willing to provide this antibiotic for those unable to afford the cost. Office treatment to the extent of 3,000,000 to 6,000,000 units over a period of fifteen days is highly satisfactory and fully as effective as larger doses. The early treatment of syphilis is preventive in nature, and the assumption of the cost of medication by the state when the individual is unable to afford it is justified from a realistic standpoint.

SALINE SOLUTION IN TREATMENT OF BURN SHOCK

The Surgery Study Section of the National Institutes of Health has recommended to the Surgeon General of the Public Health Service that the use of oral saline solutions be adopted as standard procedure in the treatment of shock due to burns and other injuries in the event of large-scale civilian catastrophe.

The recommendation followed action taken at the January, 1950, meeting of the Surgery Study Section, when such treatment was approved in principle. Dr. Carl A. Moyer, a member of the Study Section, was designated at that time to prepare a memorandum suitable for submission to Dr. Norvin A. Kiefer, Director, Health Resources Division (now Health Resources Office), National Security Resources Board.

EDITOR'S NOTE: The above article calls attention to a simple adjunct in the treatment of shock due to burns and other injuries which has been found to be of value. It is, therefore, being published for the information of the profession of Minnesota.

Dr. Moyer's memorandum, which was submitted to Dr. Kiefer on February 15, 1950, reads as follows:

"Since the publication of the experimental work of Dr. Rosenthal, Dr. Joller, et al, orally administered salt solutions have been employed in the treatment of burns at the University of Michigan Hospital, Ann Arbor, Michigan; at the Wayne County General Hospital, Eloise, Michigan; and at Parkland Hospital, Dallas, Texas. Personal clinical experience, in the above-named hospitals, has convinced me that the orally administered salt solutions are valuable adjunctive agents in the treatment of shock incident to burns, fractures, peritonitis, and acute anaphylactoid reactions. Certain factors are important in governing the effectiveness of the oral administration of salt solutions. They are as follows:

"1. The composition of the salt solution: The most palatable salt solution is made by dissolving 3 to 4 grams of sodium chloride and 2 to 3 grams of sodium citrate in each liter of water. If sodium citrate is not available, ordinary baking soda may be substituted for it.

"2. The concentration of salt should not be in excess of 140 milliequivalents of sodium per liter. If the concentration is above this, vomiting and diarrhea become important complicating factors.

"3. Whenever profound peripheral circulatory collapse is present, the intravenous route of administration must be used until peripheral blood flow has been reestablished. The salt solutions that we have found most satisfactory for this purpose are Hartmann's solution (Lactate-Ringer's solution) or plasma. In addition to the salt solution or plasma intravenously, whole blood is given concurrently whenever peripheral circulatory collapse exists. This materially implements the effectiveness of salt solutions.

"The slightly hypotonic salt solution is the only drinking fluid permitted the injured individual until the edema of the injured parts begins to subside. Certain exceptions to this rule have to be made during the hot weather of summer when it is sometimes necessary to permit the partaking of some non-salty water.

"A much as 10 liters of the hypotonic salt solution have been drunk in the twenty-four-hour period by adults who have been severely burned. Since salt solution has been substituted for water, as a drinkable fluid, no burned person who has lived for longer than three hours after being admitted to the hospital has suffered from anuria. The 'early toxemia phase' of the burns has also failed to appear and the osmotic concentration of the plasma electrolytes has been well maintained.

"We feel that much more clinical observation and actual experimental work should be undertaken regarding the effectiveness of the basic principles of the supportive therapy of burns that have been so beautifully demonstrated by Dr. Rosenthal. It is obvious that the adoption of a more active program of investigation into the relative effectiveness of simple measures to combat shock would be of extreme importance to the Armed Forces and to the civilian population in the event of another war."

Because of the sharpened national emergency that developed during the summer of 1950, the Surgery Study Section, in approving Dr. Moyer's memorandum at its meeting on September 16, changed the last paragraph to read:

"While further clinical research concerning the effectiveness of oral salt solution in the treatment of burns and other injuries is certainly in order, there is already sufficient evidence to suggest that this form of treatment should be used in any large-scale disaster involving the civilian population."

The Surgery Study Section letter to the Surgeon General, dated September 16, 1950, reads as follows:

"It is my understanding that one of the functions of the Study Sections is to offer advice to the Surgeon General in fields of medicine lying within the special competence of the Study Section members. At the January, 1950, meeting of the Surgery Study Section, there was considerable discussion concerning the use of oral saline solutions in the treatment of burns and other serious injuries. It was the consensus of the Section at that time that, on the basis of the animal work which had been done by Dr. Rosenthal of the National Institutes of Health, and the clinical work which had been done by Dr. Carl A. Moyer, by the undersigned, and by others, the efficacy of such treatment had been definitely demonstrated and that, while there is need to stimulate additional research in this field, our present knowledge is sound enough so that action can be taken on this basis. Dr. Moyer was designated to draft a short memorandum expressing our point of view on this subject. Such a memorandum was prepared and furnished to Dr. Norvin C. Kiefer, Director, Health Resources Division, National Security Resources Board, on February 15, 1950. A copy of Dr. Moyer's memorandum is attached.

"In view of the more acute national emergency that has developed since Dr. Moyer wrote this memorandum, the Study Section, at its meeting on September 16, 1950, voted to recommend that the principles of treatment outlined in his memorandum be adopted for widespread use in any large-scale disaster involving the civilian population. Because of the present emergency situation, we have modified the last paragraph of Dr. Moyer's memorandum to read, 'While further clinical research concerning the effectiveness of oral salt solution in the treatment of burns and other injuries is certainly in order, there is already sufficient evidence to suggest that this form of treatment should be used in any large-scale disaster involving the civilian population.'

"You are at liberty to transmit this recommendation of the Surgery Study Section to the National Security Resources Board or to other proper agencies, and, if you see fit, to publish it. We feel strongly that it is important for the medical profession of the country and for those planning for the handling of potential disasters to be informed of the value of this simple and easily carried out form of treatment."

The letter was signed by Frederick A. Coller, M.D., University of Michigan, Chairman of the Surgery Study Section.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

NEWSPAPER COMPLAINS OF TOO MANY ZEROS

Using its familiar method of sly kidding with a serious undertone, the Wall Street *Journal* recently found that the "billion dollar era" makes it rather uncomfortable. The *Journal,* and probably most Americans, finds that figures of the national debt and federal spending are a little difficult to understand, and too many zeros can have ominous implications. The paper says:

> "Frankly, we've never felt at home in the billion dollar era. A dozen ciphers added onto a digit or combination of digits blurs our economic comprehension.
>
> "We can easily grasp five cents for a pack of chewing gum or one dollar for a haircut or even seventy-five dollars for a new suit. But 40,000,000,000 or 45,000,000,000 as a measurement of dollars brings on a sort of myopic miscomprehension that leaves us not quite sure what it means."

The Explanation—Simple?

The *Journal* had hopes of being able to count the costs of government after the second world war, but now has to try to see the figures of spending in a proportionate light—giving each second an amount to spend. The result is:

> "After a World War II spending spree that left endless zeros whirling wildly through our head, we hoped things might settle down where we could see and count the cost of government. But that hasn't happened and now the cost is on the rise again.
>
> "To try to bring the spending down to our size we've taken this fiscal year's prospective spending, some $40,000,000,000 to $45,000,000,000 and translated it into so much per second—through the year. That comes out to a minimum $1,720. What that means is that while we smoke one cigarette $228,000 disappears. And in the time it takes us to commute from home to office each morning $6,000,000 is gone."

There's a Moral

In the time it takes to smoke away $6,000,000, the average taxpayer stops to realize that his money is going altogether too swiftly. The more the government spends, the more it has to spend, and the more control it wields. The *Journal* wisely advises that tax money should be more carefully spent, and not squandered on schemes which are unnecessary to the citizens' good:

> "We know that wars are costly. But a lot of those dollars have nothing to do with war or defense. They go to subsidize housing and buy 'surplus' potatoes and dried eggs and a lot of things we could do without."

The moral to the whole story seems to be that if American voters choose the correct members of Congress, less lavish spending will begin to be evident in the Eighty-second Congress beginning in January.

INDUSTRIALISTS EXPLAIN DEMAND FOR PENSIONS

The key factor behind the demand for pensions was explained recently by a speaker before the National Association of Cost Accountants. Percival F. Brundage, of Price Waterhouse & Co., sounded the warning that, "Debasement of the dollar is a key factor behind the demand for pensions. This is so," he said, "because inflation discourages personal savings by reducing their value as time goes by."

Adding his note of warning that continued decreased value of the dollar will make savings for old age smaller in purchasing power, Robert C. Tyson, comptroller for United States Steel Corp., said:

> "Thus, if there is a continuing debasement of the money, with resulting price and wage inflation, then the dollar amounts to the pension based upon the level of wages of the last ten years of service will be greater than were provided for during the earlier years of service at lower levels of dollar wages. The dollars set aside during these earlier periods therefore may prove insufficient and have to be made up at higher costs than were previously calculated."

Mr. Tyson's remarks had been limited to private pension plans, but he then stated, "Government Social Security plans are similarly complicated, but the Government can always manipulate the currency."

Those falling under the new social security groups, will wonder if the government will use its power to manipulate the currency once again, thus exercising more control over more people than ever before in peace time. Mr. Tyson remarks:

> "Can you think of a handier and more popular device for power-hungry people to employ in obtaining support than promises to take good care of people when they get old—that is, later on? The 'later on' is very important to the promiser; he gets the popularity he seeks today. As for paying up tomorrow—well, tomorrow is another day, and if necessary the currency can be debased. It has been in other times and places. In this country it already has been debased by nearly one-half since social security was first promised to numerous voters."

AMA RISES AGAIN TO ANSWER EWING

Oscar R. Ewing, in his own *little* way, has again reverted to smear tactics in a new vicious attack on the American Medical association. By injecting the racial issue into his blows, Ewing belittled himself more than usual by accusing medical schools of practicing discrimination against Jews. The American Medical association replied with the following news release:

> "The American Medical association in a blistering indictment of Federal Security Administrator Oscar Ewing, which stated that he had twice been given a vote of 'no confidence' in Congress, today characterized him as a 'disappointed, embittered bureaucrat, who should be removed from office before he does further harm to the country.'
>
> "Dr. George F. Lull, Chicago, general manager of the A.M.A., who issued the statement, declared:
>
> 'Mr. Ewing, in his speech . . . before the American Jewish Congress, descended to the depths of political demagoguery when he falsely implied that the American Medical Association was practicing discrimination against Jews . . . The two Houses of Congress, in successive years, have given Mr. Ewing a decisive vote of no confidence, by rejecting his attempts to gain Cabinet stature and control over the medical profession through the creation of a Department of Health, Education and Security.
>
> 'President Truman should finish the job and dismiss Mr. Ewing from the public service before he does further harm to the country.'"

DOCTORS GET SMALL FRACTION OF COUNTRY'S MONEY

People who are inclined to think that American doctors make money hand over fist should realize that much of the doctor's time is given gratis and that *twice* as much is spent for other health services as for physicians' fees.

According to a government survey, made public recently, only about one-third of the money spent for health purposes goes to physicians in payment for their services.

Citing the figures in the Commerce department's "Survey of Current Business," The Bulletin of the Academy of Medicine of Cleveland says:

> "During the 12 months (1949) physicians received $2,267,000,000. During the same 12 months Americans were spending $1,391,000,000 on drugs, $105,000,000 on private nurses, $416,000,000 on ophthalmic products and orthopedic appliances and $1,631,000,000 on private hospitals. (Incidentally, if non-private hospitals were included—U. S., state and local—the hospital cost figure would be several times as high, with a subsequently greater difference between payments to physicians and payments for other health services.)
>
> "Several other comparisons are interesting. For instance, $395,000,000 went for such burial items as cemeteries, crematories, monuments and tombstones. This figure, according to the survey, just about equals the 'net amount' spent for accident and health insurance. It is almost four times as great as expenditures for private nurses, and it is found to total almost half the amount paid to dentists . . ."

AMERICAN DOCTOR STUDIES BRITISH HEALTH SERVICE

An American doctor, recently returned from Great Britain, made a comparison of medical care and costs under national health service in England, and medical care and costs under the American medical system.

While admitting that the American system of medicine, good though it is, has many faults, Dorothy V. Whipple, M.D., quoted in *The Survey*, remarks, "Frankly, as an American doctor, I was shocked at the quality of medical care given by the English urban general practitioners."

Reporting on differences between the British and American systems, Dr. Whipple says:

> "In the United States, distinctions between general practitioner and specialist are not sharp. Often a patient may not be quite sure whether or not his

doctor is a specialist." (This would never happen in England.)

Dr. Whipple also studied the fee system and how it works:

> "The general practitioner receives a capitation fee—that is a flat sum per year for each name on his registry, regardless of how many times the doctor sees the patient. Specialists are paid salaries varying with their skill.
>
> "To an American observer the disadvantages of the old British system seem more firmly established under the new scheme, which reinforces the wall between general practitioner and specialist."

More Patients, Poorer Care

With the advent of National Health Service, Dr. Whipple states, most doctors found they had more work to do. "Even though a doctor served exactly the same area and the same families as before, he had more calls as soon as no direct payment was required. Part of the increased load represented persons who had put off medical care because they could not pay the bill. Some of the increased load was foolishness—people who wanted what they could get because it was 'free.'"

The kind of medical care received is described by Dr. Whipple:

> "But what of the care these people receive? The general practitioner's income depends not on the number he treats but the number registered with him. The law says he may not have more than 4,000 on his list. Obviously no doctor can give much care to each of 4,000 men, women and children, even if only half of them actually require his services in any one year.

Calls GP a "Clearing House"

> "The more patients the general physician has, the greater is his tendency to refer cases to the hospital and the specialist. As a result, he becomes increasingly a clearing house, less and less a real practitioner of the healing art. He is so busy he has little time for preventive medical service. All too often he prescribes the customary bottle of sedative and allows the patient to go along to see whether anything serious develops."

DECREASE IN TUBERCULOSIS

In 1937, Wade H. Frost concluded that the point had been reached in the United States where there is a gradual downward trend in the incidence of tuberculosis, and that, barring major upsets in civilization, the eventual eradication of the disease can be expected. The continued decline in the annual number of deaths from tuberculosis during the past twelve years, in spite of the adverse conditions caused by a great war, is ground for confidence in the accuracy of Frost's conclusion. A. C. CHRISTIE, M.D., *Pub. Health Reports,* June 2, 1950.

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

230 Lowry Medical Arts Bldg.
Saint Paul 2, Minnesota

J. F. DuBois, M.D., Secretary

St. Paul Woman Sentenced to Jail Term for Criminal Abortion

Re State of Minnesota vs. Helen A. Heck.

On October 13, 1950, Helen A. Heck, forty-three years of age, 809 Iglehart Ave., Saint Paul, Minnesota, was sentenced by the Hon. Gustavus Loevinger, Judge of the District Court of Ramsey County, Minnesota, to a term of not to exceed eight years in the Women's Reformatory at Shakopee. The defendant Heck had previously entered a plea of guilty on September 19, 1950, to an information charging her with the crime of abortion and to having a prior conviction in 1947, also for the crime of abortion. Following a statement by the attorney for the defendant, and legal counsel for the Minnesota State Board of Medical Examiners, Judge Loevinger ordered the case continued to April 6, 1951, at 2:00 p.m., the defendant, however, to remain in the custody of the Sheriff of Ramsey County. This means that the defendant will have to serve the first six months of her sentence in the Ramsey County Jail and the Court will then determine whether or not the balance of the sentence should be stayed and the defendant placed on probation. Judge Loevinger cautioned the defendant that probation was hardly indicated by her past record. The Court also stated that the defendant "undertakes to practice medicine and surgery without having the necessary qualifications."

The defendant Heck, who has no medical training of any kind, was arrested by Saint Paul police officers on September 10 ,1950, following the admission of a twenty-two-year-old Minneapolis divorcee to Minneapolis General Hospital suffering from the after effects of a criminal abortion. The police also discovered another patient, a twenty-one-year-old unmarried Saint Paul girl, in the apartment of the defendant Heck upon whom the defendant had attempted an abortion. The investigation disclosed that the defendant received $265 for her services in the Minneapolis case, and $425 for her services in the Saint Paul case. Police also seized one speculum, 14 rubber catheters and numerous medicinal preparations in the apartment of the defendant. On September 18, 1950, a complaint was filed against the defendant in the Municipal Court of Saint Paul, charging the defendant with the crime of abortion in the Minneapolis case. On September 19, the defendant was arraigned in the Municipal Court, waived a preliminary examination, and was held to the District Court. On the same date, the defendant was arraigned in the District Court on an information charging her with the crime of abortion, and to that information she entered a plea of guilty. The Court then continued the matter to October 13, for sentence as outlined above.

The records in the office of the Clerk of the District Court of Ramsey County disclose that the defendant Heck has a prior conviction for the crime of abortion. On August 21, 1947, the defendant, together with one Assunda Willner entered a plea of guilty in the District Court of Ramsey County, to an information charging both with the crime of abortion. For that offense Judge Parks sentenced the defendant to a term of not to exceed four years in the Women's Reformatory at Shakopee but stayed the sentence after the defendant served sixty days in the Ramsey County Jail.

Minnesota Department of Health

METHEMOGLOBINEMIA IN INFANTS

During 1947, 1948, and 1949, 146 cases of methemoglobinemia in infants due to nitrates in well water were reported. This included fourteen deaths. For a period of ten months no cases were reported but during the past five months fourteen cases have been reported, with two deaths. As physicians became familiar with this condition during the study carried out by the Minnesota Department of Health, parents with newborn infants were warned to use only approved municipal water supplies or safe private water supplies. In recent months, however, physicians have apparently neglected to inform parents of the danger of using questionable well water in infant formulas, especially in southwestern Minnesota.

A brief résumé of the study of methemoglobinemia in infants due to nitrates in well water is given to remind physicians that this disease must be kept in mind. Ninety per cent of the infants were under two months of age and about 8 per cent were between two and five months old. The youngest infant was seven days old and the oldest was five months old. More than half of the infants developed symptoms in one to three weeks after being on a formula requiring considerable water as a diluent. Fifteen per cent developed symptoms in less than seven days, the shortest period being one day. No breast-fed infant developed cyanosis. Evaporated milk mixtures were responsible for 40 per cent of the cases, powdered milk formulas for 35 per cent and diluted cow's milk for 25 per cent. The characteristic symptom is a grayish blue or brownish blue cyanosis accompanied frequently by listlessness or lethargy, diarrhea, or fussiness. Most of the private water supplies involved were shallow dug or bored wells within 50 feet of a source of pollution and contained from 25 to 50 parts per million of nitrate nitrogen, the average being from 50 to 75 ppm.

A presumptive diagnosis may be made if on removal of venous blood for hemoglobin determination the blood is chocolate colored and if there are more than 10 to 20 parts per million of nitrate nitrogen in the water used in the formula. Such a diagnosis is justified if there is spontaneous disappearance of the cyanosis in 24 to 48 hours on changing the water in the formula to an approved water supply and the nitrate nitrogen content of the water used in the formula exceeds 10 to 20 parts per million. In either case the history and physical findings should be typical. An absolute diagnosis is made by demonstrating a definite methemoglobin live on spectroscopic examination or by the chemical analytic method of Evelyn and Malloy.

In the differential diagnosis certain serious conditions must be ruled out, including congenital heart disease, pneumonia, atelectasis, pneumothorax, diaphragmatic hernia, congenital pulmonary, and tracheal malformations, and "thymic syndrome." It is well to remember Ferrant's observation, that there is a striking difference between the cyanosis and the alarming condition of the infant on the one hand, and the normal pulse and respiration and lack of physical findings on the other.

In mild cases, treatment consists of changing the water used in the formula to an approved municipal supply. Many physicians use oxygen but there is considerable doubt as to its value in this condition. Ascorbic acid has been used successfully. In severe cases, one per cent methylene blue solution, one to two mg. per kg. intravenously, may be life saving.

It is requested that physicians notify the Minnesota Department of Health, University Campus, when such infants are seen, and that samples of well water be mailed to the department for nitrate analysis. A copy of the reprint of the article on methemoglobinemia which appeared in the August, 1950, issue of MINNESOTA MEDICINE is available on request.

BIRTH AND STILLBIRTH CERTIFICATES

Revised certificates of death, live birth, and stillbirth have been developed and were first used in Minnesota beginning January 1, 1950. A discussion of these new forms of vital records by Casady and Brower appeared in the December, 1949, issue of MINNESOTA MEDICINE. The importance of exactness in reporting was pointed out and emphasis was given to the necessity for accurate data on birth weight, prematurity, and congenital malformations. Since prematurity was the ninth leading cause of death and congenital malformations in tenth place in Minnesota in 1949 such information is needed in the development of programs related to the care and survival of premature infants as well of problems involved in congenital malformations.

A preliminary review of 20,000 birth certificates indicates that there is some confusion as to the definitions of live birth, stillbirth, and prematurity. The following definitions should clarify the situation. The international definition of a *live birth* is the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy, which after such separation, breathes or shows any evidence of life such as beating of the heart, pulsation of the umbilical cord, or definite movements of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached.

Full term pregnancy varies from 220 to 330 days, with an average of 270 days. This is the equivalent of nine calendar months of thirty days each or approximately ten lunar months of twenty-eight days, computed on the basis of Naegele's rule, from the date of onset of the last menstrual period to delivery. A full-term pregnancy is, therefore, not thirty-six weeks but is actually forty weeks of gestation.

A *stillbirth* is a delivery of a fetus showing no evidence of life after complete birth (no action of heart, breathing, or movement of voluntary muscle), after

(Continued on Page 1165)

Minneapolis Surgical Society

Meeting of January 5, 1950

The President, Ernest R. Anderson, M.D., in the Chair

ACUTE CONDITIONS OF THE ABDOMEN

L. A. STELTER, M.D.
Minneapolis, Minnesota

The reason for the common pitfalls in the diagnosis of acute abdominal conditions is that we think of the multitude of possibilities rather than the few outstanding conditions which confront us in everyday surgery.

To elaborate on all the possible catastrophes of an abdomen only adds to confusion with wasted time and words. In order to make our job more practical and efficacious, let us have a definite plan of attack by combining our anatomic location of disease, clinical, and laboratory findings in such a way that the diagnosis may be reached more easily and then treat the patient accordingly.

First, for simplicity, let us divide the abdomen in two planes: the upper abdomen, that part lying in the plane above a line drawn transversely through the umbilicus, and the lower abdomen, that part lying beneath this same line.

Let us consider the most common conditions which may occur in these planes. Next we shall combine our history, present complaints (male or female), physical findings, laboratory and x-ray findings in such a way that a conclusion may be reached.

Those conditions occurring in the upper abdomen are:

1. *Acute Cholecystitis.*—It has been said that certain people develop certain diseases and this seems to hold here; the gall-bladder type are fair, fat, and forty, though occasionally a very thin patient under forty years of age may develop the most severe gall-bladder disease. The chief complaints of the patient are pain, food distress, food dyscrasia, belching, and bloating. The four foods most offensive are fried and fatty foods, raw apples, cucumbers, and cabbage. Thorek calls such people the 7 F's—female, fair, fat, forty, flatulent, flabby, and fertile.

The pain may be intense and constant or intermittent and colicky. Colicky pain indicates an obstructive lesion or the passage of a stone. The pain is located in the right upper quadrant and radiates along the costal nerves to the back and scapular region. Occasionally it may be referred along the splanchnic nerves which supply the stomach and must not be confused with ulcer or carcinoma of the stomach. Gall-bladder pain does not refer to the shoulder. Shoulder pain is due to phrenic nerve irritation and is due to a different mechanism.

The temperature, pulse and respiration are elevated. The temperature of the acute gall bladder rises to 101°-102° in the first twenty-four hours. The pulse increases at the rate of about 10 beats per degree of temperature. The respiration rate increases because of chest pain and painful breathing and may lead to confusion with early pleurisy or pneumonia. The gall-bladder area is tender to touch. The point most markedly tender is beneath the right costal margin. If the tenderness is lower or near the umbilicus, it is due to inflammation in a low lying gall bladder or a retrocecal appendicitis. Here Ligat's sign will be of help. Rectal and recto-vaginal and vaginal examinations are made always. Laboratory examinations consist of complete blood count and urinalysis. The differential count is most important as a high polymorphonuclear count indicates an infectious process, and a low polymorphonuclear count in the presence of a low total white blood cell count means poor resistance and a bad prognosis. A few blood cells in the urine may be misleading and a negative urine erroneous. A scout x-ray film of every acute abdomen is taken in the upright and flat position as much information is obtained in this manner.

2. *Perforated Peptic Ulcer.*—This is rare in the female. The perforation may be the first symptom, but usually there is a history of peptic ulcer, gastric hemorrhage or food distress. The pain is severe and sudden and so intense that the patient doubles up and may drop to the floor. The pain causes the abdomen to become board-like rigid and the patient shows signs of shock. About one-fourth of the patients have shoulder pain due to phrenic nerve irritation. The abdomen is tense and tender, and point tenderness early will be above the umbilicus. Later it will be in the right lower abdominal quadrant. Appendicitis is frequently mistaken for ruptured peptic ulcer. Auscultation reveals a silent abdomen. The temperature is normal or subnormal at first. With peritonitis it rises. The pulse increases moderately and the respirations are 24 to 30 per minute, shallow and costal in character. The leukocyte count averages 15,000, and polymorphonuclear cells average 80 per cent. Leukopenia may be present. The urine is normal.

In 1908 Weinberger observed on x-ray film the accumulation of gas under the diaphragm, and Popper in 1915 reported a case in which he observed gas under the diaphragm by fluoroscopy. In about 70 per cent of the cases air can be demonstrated under the right diaphragm by fluoroscopy with the patient lying on the left side.

3. *Acute Pancreatitis.*—There are two types—acute hemorrhagic and acute edematous pancreatitis. The latter is the more mild and recovery usually occurs without therapy, while the former is associated with hemorrhage in the pancreas and fat necrosis, and prompt treatment is necessary. The history is usually similar to that of acute cholecystitis and it occurs more frequently in females of the stout type over forty years of age. It appears following the ingestion of a heavy meal. The onset of pain is dramatic, sudden, excruciating, and radiating to one or both loins. The pain is relieved when the patient sits up or lies on his abdomen. Reflex vomiting and retching occurs. Examination shows the patient to be in extreme pain, in semi-shock, with subnormal temperature, rapid, thready pulse, epigastric tenderness associated with muscular defense localized to the organ, most marked between the xiphoid and umbilicus; occasionally ecchymosis in one or both loins or at times around the navel due to extravasation of blood around the retroperitoneal space. Abdominal auscultation, a helpful diagnostic agent, usually reveals a quiet but not silent abdomen. Gage blocks the upper lumbar region with procaine and gets immediate relief for his patients and considers the procedure of positive diagnostic help. Laboratory work shows an elevated leukocyte count and glycosuria. A blood sugar above 300 milligrams per cent may be indicative of a fatal outcome. Elevated blood amylase is a positive test and becomes present in two to three hours after the onset of the attack. X-ray studies are not very helpful but separation of the upper and lower limb of the duodenum represents thickening of the pancreas.

4. *Ruptured Viscus (Liver or Spleen).*—If there is a history of accident or trauma, the patient may or may not present signs of shock and shoulder pain, either right or left, due to phrenic nerve irritation. Signs of internal hemorrhage are present and a diagnostic puncture of the abdomen is an important aid in deciding on urgent surgical interference. Liver dullness or splenic dullness is increased and x-ray will give evidence of an enlarged organ with displacement. The patient must be watched for late secondary hemorrhage. Laboratory findings suggest peritoneal irritation with leukocytosis and lowered hemoglobin values due to hemorrhage. Urinalysis will be negative.

5. *Coronary Disease.*—The surgeon cannot afford to make the fatal error of confusing an acute coronary disease with an acute abdominal condition. The coronary condition is more common in men past the age of forty, with a history of previous dyspnea and chest pain occurring during exertion. The pain may be sudden or gradual, increasing in severity, involving the upper abdomen and chest and radiating to the left arm or both arms or up the neck. There is fear and fright associated with the pain. There is a history of indigestion, belching, and bloating not related to foods. The attack may appear after a heavy meal.

Examination reveals possibly an enlarged heart, a soft slow pulse, low blood pressure, dilated neck veins, a flaccid abdomen and no point tenderness or muscle spasm. An elevated leukocyte count and sedimentation rate and a positive electrocardiogram reading are diagnostic, and these findings may be present the first twenty-four to forty-eight hours after the onset of the attack. X-ray reveals a negative abdomen and an enlarged heart. Urinalysis will be negative.

Common pathologic conditions occurring in the lower abdomen are:

1. *Acute appendicitis* is found more frequently in individuals under forty years of age and is somewhat more common in females. The patient usually first notices a "stomach-ache" and the druggist or good friend has prescribed a cathartic. If given the Two Question Test—(1) "Where was your pain when it started?" and (2) "Where does it hurt you now?"—the patient usually points to the epigastrium in answer to the first question and to the right lower quadrant in answer to the second question. This simple method will frequently diagnose the case.

Text books that teach that acute appendicitis can be diagnosed by pain, temperature, nausea, vomiting, and leukocytosis may be erroneous. Nausea and vomiting are the exception, not the rule, in appendicitis. Loss of appetite is a more constant sign and is due to early distention of the appendix. Wyatt states that a child with abdominal pain who can eat does not have appendicitis. Diarrhea and chills are rare in acute appendicitis and constipation is the rule. Fever is not an early finding but is present after peritoneal irritation has taken place. When the temperature has risen to 101° or 103°, localized or beginning generalized peritonitis has started already. Point tenderness is the most important sign in the diagnosis. With the patient lying on his back, pressure in the region of the inflamed organ will cause the patient to wince with pain and cause muscle spasm (both recti) due to a defense mechanism. Ligat's sign will be helpful and Rovsings' sign may be elicited by pressure on the left lower quadrant which forces gas along the colon against the cecum, causing pain over the cecum. It is found in 60 to 70 per cent of the cases. Rectal and vaginal examinations are important. Laboratory examination reveals a leukocyte count of 14,000 to 15,000 with a high polymorphonuclear cell count. However, occasionally, a gangrenous appendix will be associated with a normal count. Urinalysis may show occasional pus cells due to ureteral irritation. Flat plate of the abdomen helps in ruling out other abdominal conditions.

2. *Renal Colic.*—This may be due to stones, blood clots, urates or ureteral kink. The condition is most frequent in males and there may be a history of previous attacks, family tendencies, a story of gout or parathyroid pathology. The pain is sudden, severe and colicky, starting in the lumbar region, right or left, and radiating to the vulva or testicle. There is restlessness and thrashing about while the patient with peritonitis lies quiet. Vomiting and urinary frequency are common. During urination the colicky pain may be altered.

Physical examination rarely reveals an elevated temperature. Bradycardia is a common finding. A clean tongue and slow pulse in an acute abdomen is a renal condition until proven otherwise. Murphy percussion and tap is very painful.

Leukocytosis may be present. Blood, pus, and albumin are found in the urine. However, a stone may block completely a ureter and produce a negative urine. X-ray examination may reveal a stone present though non-opaque substances may cause the renal colic.

3. *Gynecologic Disorders.*—In considering other conditions of the lower abdomen, the general surgeon must be bold enough to invade the field of the gynecologist. Here, such conditions as acute salpingitis, twisted ovarian pedicle and ruptured ectopic pregnancy are most frequent. The diagnoses are made by the same plan of attack.

4. *Diverticulitis.*—There is a history of irregularity of bowel habits and at times colicky intestinal cramps and pain in the lower abdomen. The condition is more common in males. Course and rough foods cause intestinal irritation. During an attack there is leukocytosis, moderate fever, distention of the abdomen and bloating. X-ray examination with a small amount of barium will prove the diagnosis.

Case 1.—Mrs. E. M., a white woman, aged sixty-six, had a history of repeated attacks of right kidney infection for fifteen years. At one time she passed a kidney stone. Present illness started two days previous to hospital admission with pain in the right kidney region and frequency and burning of urination. There was no history of any food distress but there was nausea. Temperature was 102°, pulse 80 on admission.

Examination revealed a somewhat distended though flaccid abdomen. There was no point tenderness except the tenderness over the right kidney on Murphy percussion. There was some tenderness on deep palpation over a lower right rectus scar. Vaginal examination was negative.

The urinalysis showed two plus albumin, 40 to 50 pus cells, and 5 to 10 red cells. The white blood cell count was 19,800, 85 per cent polymorphonuclear cells, 15 per cent lymphocytes. X-ray revealed definite distention of the large and small bowel. The kidney shadows were normal but some calcifications in the right pelvis which might be phleboliths. The impression was acute pyelitis, possibly kidney stone passing. On the third day in the hospital the patient became very distended and complained of severe pain in the right costal region with point tenderness. Exploratory laporotomy revealed a perforated gall bladder full of stones, free bile in the peritoneal cavity. Drainage was instituted. The patient ran a stormy course. She developed pneumonia with empyema. Death ensued. The autopsy revealed localized peritonitis, sub-diaphragmatic abscess, empyema, and pyelitis.

Case 2.—Mr. M. S., a white man, aged sixty-three, had a negative past history as to stomach distress or indigestion. The present illness started shortly after arising in the morning with an acute upper abdominal pain. This was his first attack of stomach trouble. He vomited several times. Examination revealed a board-like, rigid upper abdomen. There was localized tenderness above the navel line. Negative urinalysis. There were elevated white cell and polymorphonuclear cell counts. X-ray findings and fluoroscopy of the abdomen revealed a small amount of air under the right diaphragm. Laporotomy verified the diagnosis of a perforated duodenal ulcer. The post-operative course was uneventful.

Case 3.—Mr. N. H., a white man, aged forty-nine, was seen in consultation the second day after his admission to the hospital. He had a distended abdomen. There was moderate tenderness in the left pelvic region. Rectal examination revealed a mass in the left pelvic region. The urinalysis was negative. The white cell count was 15,900, with 80 per cent polymorphonuclear cells. The x-ray revealed loops of distended bowel with gas in the colon and lower bowel. Conservative treatment was continued. Twenty-four hours later the patient became worse and exploratory laparotomy revealed a ruptured appendix with ileum obstructed due to an abscess and exudate in the pelvis. Appendectomy was done, leaving an indwelling ileostomy tube. The postoperative course was stormy, but the patient recovered.

Case 4.—Master W. M., a white boy, aged six, was struck by an automobile and received a concussion, bruises to the lower right chest and upper abdomen. He entered the hospital semi-comatose Examination revealed multiple abrasions on the boy's head and lower chest. The urinalysis was negative. Hemoglobin was 74 per cent. The white cell count was 14,000, with 78 per cent polymorphonuclear cells. X-ray of the abdomen on admission showed nothing of note. When seen in consultation two days later the lower right chest revealed dullness. There was increased liver dullness. The hemoglobin was 66 per cent. The red cell count was 3,100,000 and the white count was 15,600. X-ray showed the liver to be increased in size. A needle was introduced in the abdomen and revealed no intraperitoneal blood. The boy was transfused and treated conservatively and recovery was uneventful. A diagnosis of intracapsular hemorrhage of the liver was made.

Case 5.—Mr. A. S., a white man, aged fifty, had been under my observation for several years with a duodenal ulcer which had been inactive for the past fifteen months. Present illness of stomach distress had appeared five days prior to hospital admission while on a hunting trip. Four hours before entering the hospital he developed severe abdominal pain around the navel with nausea and vomiting. His wife said he nearly fainted because the pain was so severe.

Examination revealed a board-like abdomen above the navel and along the right side with point tenderness in the right lower quadrant. The urinalysis was negative. The white cell count was 16,500, with 80 per cent polymorphonuclear cells. Flat plate of the abdomen was negative for air. A diagnosis of ruptured appendicitis was made and a lower right rectus incision revealed a retrocecal ruptured appendix. Appendectomy without drainage was performed. The postoperative course was uneventful.

Case 6.—Mrs. O. S., a white woman, aged thirty-seven, had been bleeding for two weeks prior to hospital admission. When seen by myself she gave a history of no missed periods or irregularity until the present bleeding episode. She had had two children living and well, the youngest being fifteen years of age. Examination revealed the patient in severe pelvic pain. The pulse was soft and rapid. Blood pressure was 100/80. There was marked tenderness in the right lower quadrant. Pelvic examination revealed a retroverted uterus and a tender, boggy mass in the right cul-de-sac. The patient refused needle puncture. The white cell count was 22,500, with 86 per cent polymorphonuclear cells. A flat plate of the abdomen gave no information. A laporotomy verified the diagnosis of a ruptured ectopic pregnancy. The postoperative course was uneventful.

Case 7.—Mrs. K. A., a white woman, aged fifty, had been admitted thirty-six hours prior to the time I saw her in consultation. She gave the history of intermittent cramps of the lower abdomen associated with the appearance of menstrual blood. She had been operated upon twice in the past for appendicitis in childhood and had had a pelvic laporotomy eight years previously. Nasal suction had been started on her admission to the hospital, which gave her a small amount of relief until 6:00 a.m. of the day I examined her. When seen at 10:00 a.m., her pulse was 140 and blood pressure was 80/50. The skin was cold and clammy. The abdomen was moderately distended and there was a tender palpable mass in the left lower quadrant the size of a child's head. There was a right rectus and midline scar. Pelvic examination revealed a bloody discharge and a tense, tender palpable mass filling the left pelvis. A catheterized specimen of urine was normal. The white cell count was 18,600, with 88 per cent polymorphonuclear cells. A flat plate of the abdomen revealed a mass in the left lower abdomen and two large stones in the bladder. A diagnosis of twisted ovarian pedicle with gangrene or gangrenous bowel from an obstruction or mesenteric thrombosis was made. The patient's condition was critical and in spite of multiple portals of blood and fluid she remained in shock. Emergency exploratory under spinal anesthesia revealed multiple pelvic adhesions. Three loops of gangrenous small bowel, 72 cm. in length, held in the pelvis by an adhesive band to an ovarian cyst were liberated, resected, and an end-to-end open anastomosis was performed. As soon as the grangrenous bowel was excised the patient's condition improved. Her pulse lowered to 110 and a gradual rise in her blood pressure changed the entire picture. The abdominal tissue, which had been cold, began to warm. She left the operating room in fair condition and her postoperative course was uneventful.

Summary

1. Pitfalls in acute abdominal diagnosis are made when we confuse the more common disorders with the many possible abdominal catastrophies.

2. I have tried to simplify diagnostic procedures by a planned method:

(a) Dividing the abdomen in two planes.

(b) Correlating the clinical and laboratory findings.

3. A case report has been given to represent each of the more common acute abdominal conditions.

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Discussion

Dr. Hamlin Mattson: Development of chemotherapy and antibiotics has permitted more deliberation in cases where the diagnosis is obscure in acute abdominal conditions. In some instances nonoperative treatment is possible where before operation was considered imperative.

An example in point is perforated duodenal ulcer. When sulfonamides only were available, slow leaks on an empty stomach were treated occasionally with suction siphonage and chemotherapy.

In February, 1939, I saw a woman, aged forty-five, who had a fairly typical history and findings of ruptured duodenal ulcer with gas demonstrable under the right diaphragm. The rupture occurred about four hours after a meal, the area of peritoneal irritation was limited and with some temerity I treated her nonoperative as indicated above.

Infections have accounted for most of the fatalities in ruptured peptic ulcer. In 1937, Bergh, Bowers, and Wangensteen made one centimeter long incisions in the stomachs of animals. Those incised when the stomach contained food showed an 86 per cent mortality. Of those incised with empty stomachs only 6.8 per cent died. The mortality rate from perforated peptic ulcer has declined rapidly in the past years. Trieger in 1947 reported a 33 per cent mortality in 73 cases from 1930 to 1944 and no deaths in seventeen cases from 1944 to 1946. Others have reported similar results.

In 1946, Taylor of London reported trial of nonoperative treatment. In twenty-eight cases there was a 14.3 per cent mortality. Seeley in 1949 reported thirty-four cases with no mortality.

About a year ago, Bingham set forth the following criteria for non-operative treatment of ruptures:

1. Less than eight hours old, or more than three days
2. More than one hour since last meal.
3. Duodenal rather than gastric.
4. Small perforation.
5. Where the differential diagnosis is uncertain.

PROBLEMS IN ACUTE INTESTINAL OBSTRUCTION

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In discussing acute intestinal obstruction there are several physiological considerations that should be taken up. The first of these is fluid and electrolyte loss. When the obstruction is high and vomiting is profuse this loss may be enormous. A patient may lose up to 8,000 c.c. daily with a corresponding loss of sodium and chlorides. When obstruction is at the pylorus, profuse vomiting may throw a patient into alkalosis and even into gastric tetany. Fluid replacement containing as high as 20 to 30 grams of salt may be necessary to replace the loss of electrolytes. The response in these cases is dramatic.

The farther down the intestinal tract that the obstruction is located, the less one need worry about electrolyte loss. Then one must consider primarily the effects of distention. In an obstructed bowel the first thing that occurs is the accumulation of large amounts of gas. This gives the characteristic x-ray of small bowel obstruction. Later the accumulation of fluid in the distended loops may replace the gas almost entirely and often gives a confusing x-ray picture unless one gets an upright film which will show fluid levels in the small bowel loops.

Distention is the most lethal factor in simple (non-strangulating) obstruction. If prolonged, it can initiate mucosal degeneration as shown by hemorrhage, erosion and ulceration. Marked distention can so compromise intramural blood flow as to endanger viability of the bowel. While the exact mechanism is not known, distention is thought to have much to do with the absorption of toxins from the obstructed bowel, for the relief of distention improves the general condition of the patient markedly.

The third most important physiological consideration is the effect of interference with the blood supply of a loop of bowel producing a strangulation obstruction. It is this factor that makes hazardous the non-operative or conservative treatment of mechanical obstruction by means of gastrointestinal tubes. It is often difficult to recognize strangulation obstruction even when the patient is being carefully watched and the surgeon is on the lookout for it. Interference with the blood supply to a loop of bowel is soon followed by loss of viability of the mucosa with resulting invasion of bacteria into the intestinal wall and through the serosa into the peritoneal cavity. Later frank necrosis and perforation may occur with gross peritoneal contamination.

In strangulation obstruction there is often enough blood loss into the lumen of the bowel and into the peritoneal cavity to account for some of the shock associated with intestinal obstruction.

While it is difficult to lay down any general rules of treatment because of the many varied causes of obstruction, it is pretty well agreed that acute obstructions of the small bowel requiring resection should be treated by immediate end-to-end anastomosis whereas acute obstruction of the large bowel should be best treated by colostomy—transverse colostomy if possible. An exception to this is acute obstruction of the right side of the colon which also can be treated safely by immediate resection and end-to-end ileo-colostomy.

Causes of Intestinal Obstruction

(In order of frequency)

A. Small Bowel

1. Adhesive bands
2. External hernia
3. Intussusception
4. Obturator
    a. Gallstones
    b. Foreign body
    c. Worms
5. Vascular
    a. Thrombosis
    b. Embolus
6. Congenital atresia
7. Volvulus
8. Neoplasm
9. Internal hernia

B. Large Bowel

1. Neoplasm
2. Volvulus
3. Diverticulitis
4. Adhesive bands

The manifestations of acute intestinal obstruction are so varied and complex that I felt that the subject could be best covered by concrete examples of cases illustrating diagnostic and therapeutic problems.

Case 1.—A man, aged seventy, early on the morning of August 13, 1949, experienced a pain and swelling in the right groin. He vomited and had what he described as a gas pain.

In mid-afternoon a strangulated right inguinal hernia was reduced by his physician. The pain persisting, he was sent to the hospital.

Late in the afternoon when he was seen in consultation, there was no swelling and no pain. Operation was not advised.

Three days later the patient was discharged from the hospital, a flat plate of the abdomen having been negative and the leukocyte count being normal.

This patient had a strangulated hernia with symptoms of bowel obstruction for a period of eight to ten hours. He had gas pains, vomiting, local tenderness and swelling. The patient was much opposed to an operation, and in view of the fact that he had reached the age of seventy before the hernia had caused him any symptoms, and because at the time I examined him, about one hour after the hernia had been reduced, he was completely free of symptoms, I agreed to forego an operation and instead we elected to observe him.

We kept him in the hospital and ran daily leukocyte counts for four days. These were normal. On the third day we had a flat plate of the abdomen which was entirely negative so the patient was discharged. If confronted with the same problem, I believe that one should strongly urge an operation. The uncertainties regarding the viability of the strangulated loop are too much to risk even when the patient is watched carefully. When contrasted with the next patient, this case takes on a more special interest.

Case 2.—A woman, aged sixty-six, a poor cardiac risk, had been operated upon by another surgeon on October 10, 1948, for a strangulated femoral hernia. A loop of bowel of questionable viability had been left.

A leukocytosis of 20,900, 20,850, and 18,700 persisting on October 12, 13 and 14, and a flat plate taken October 14 showing the small bowel distended with gas, the patient was reoperated upon. A necrotic loop of small bowel was resected and an end-to-end anastomosis made.

The patient died suddenly of a heart attack while out of bed on the fourth day following the second operation. An autopsy showed the anastomosis patent and the peritoneum clean.

Here again we are confronted with the problem of determining the viability of a loop of bowel inside the abdomen. The patient was an extremely bad heart risk who had been treated many times for cardiac decompensation by the surgeon who operated upon her for the strangulated femoral hernia. At the time of operation, after observing the bowel for some time, he felt that it would be viable and dropped it back. He was, however, worried about its status and asked me to follow her progress with him.

In such a situation you usually have a few days before an inviable bowel will rupture. Daily leukocyte and differential counts were taken. As shown in the case report these remained consistently high, around 20,000. Clinically there was some distention and tenderness, although the patient was quite obese and examination was unsatisfactory. A flat plate of the abdomen on the fourth day showed small bowel distention. In view of these findings, the patient was reoperated upon on the fourth day. The loop of bowel was found to be necrotic—so soft that we feared it would rupture as we removed it.

A closed type of end-to-end anastomosis was carried out. The patient was out of bed. Suddenly, on the fourth day after her second operation she had a heart attack and expired.

The lesson to learn from these two cases is that if you drop back a loop of questionable viability, order daily leukocyte counts and get frequent flat plates of the abdomen. If the white counts remain persistently high for a few days, and if you can rule out any other complication which might raise the leukocyte count, you had better open up the patient and look again.

In addition to the usual signs of determining bowel vialibility at the time of operation, such as the return of color, arterial pulsations and active peristalsis, there are a few other aids that have proven helpful. Fluorescein solution given intravenously will show up as a green fluorescence in a viable bowel observed under ultraviolet light. Laufman and Method measured the surface temperature of the bowel and found that the temperature of a strangulated bowel was subnormal. When the strangulated mechanism was released, if the bowel was viable, the temperature would return to normal or above. If, however, the bowel was inviable, the temperature would remain subnormal. They also found that papaverine given at the time was helpful in overcoming venospasm and aided in the recovery of the bowel if it could survive. Arnold Kremen has called attention to the fact that the return of peristalsis is not always a reliable guide, for it may be simulated by active muscle contractions due to anoxemia.

Case 3.—A man, aged sixty-two, who was diabetic, was admitted to the hospital on January 16, 1949, six days following strangulation of an umbilical hernia.

The patient was very obese and distended on admission. A large umbilical hernia was red and phlegmonous and suggested a strangulated and necrotic bowel.

The same day the hernia was removed in toto without entering the sac. An aseptic end-to-end anastomosis of the distended and collapsed loops as they entered and left the hernia sac was made (method of Dennis and Varco).

Recovery was uneventful.

This patient lost a leg in a railroad accident and had been retired for years, during which time he had become extremely fat. He had an umbilical hernia for a long time which had given him no trouble. Six days prior to admission to the hospital this could no longer be reduced and his bowels stopped moving. The swelling slowly became red and tender. Examination showed a large umbilical hernia the size of a grapefruit that was red, edematous and septic from the enclosed gangrenous bowel. The rest of the abdomen was distended but soft. X-ray showed distended loops of bowel. We knew that if we once opened into this septic sac our patient would probably die of peritonitis. So using the method described by Dennis and Varco for strangulated femoral hernia, we encircled the hernia with our incision, excised the hernia in toto, resected the bowel as it entered and left the sac, removing the hernia with its encircling ring without any contamination whatsoever. An end-to-end anastomosis was carried out. To take pressure off the suture line we asked Dr. Wild to pass an intestinal tube following the operation. The postoperative convalescence was normal.

Case 4.—A woman, aged twenty-seven, had a normal delivery on September 28, 1945. Vague abdominal pains began on October 4, 1945, and occasionally emesis occurred. Temperature and pulse were normal.

On October 10, 1945, the patient suddenly went into shock. She was seen in consultation that day and appeared in moderate shock, with the abdomen rigid and distended. X-ray of the abdomen showed small bowel distention. The leukocyte count was 17,000, with 92 per cent polymorphonuclear cells.

The same day the abdomen was opened, and a strangulated loop of gangrenous small bowel, 129 cm. in length, was found caught under a band of adhesions. Resection was performed and an aseptic end-to-end anastomosis made.

This case illustrates the difficulty in diagnosing intestinal obstruction that develops during the postpartum period. During that time both the physician and the patient expect that she will have a certain amount of abdominal pain. This patient's postpartum period was normal up to the sixth day. She then began having crampy abdominal pains that persisted for four days, never severe until during the night of the tenth postpartum day. Then suddenly she went into shock. When I was asked to see her, the abdomen was rigid and distended, pulse was rapid and blood pressure low.

As soon as shock was corrected she was operated upon. A loop of bowel, 60 inches long, was found under a band. This was black and inviable. A closed type of end-to-end resection was done about 3 inches from the ileocecal valve. Postoperative convalescence was uneventful except for loose stools that persisted for about two months.

Case 5.—A woman, aged forty-six, was found to have a carcinoma of the transverse colon in the course of an operation on December 23, 1948, for supposed appendicitis. I was asked to assist and found a greatly distended cecum due to the obstructing carcinoma.

The carcinoma and proximal transverse colon and cecum were removed, and an aseptic end-to-end anastomosis between the ileum and distal transverse colon was made.

The patient was discharged on January 10, 1949, in good condition.

Complete obstructions of the right colon present a most acute emergency and require immediate surgical relief. The cecum is thin-walled and with the ileocecal valve usually remaining competent; it then becomes a closed obstruction comparable to a strangulated loop, and blowouts occur early and frequently.

Ordinarily it is generally agreed that definitive surgery should not be carried out in acute obstructing lesions of the large bowel. Acute obstructions of the right colon, however, are an exception to this rule. Here it is possible to remove all the obstructed portion of the colon together with the growth and make our anastomosis between normal collapsed distal colon and the terminal ileum. This can be done even if the small bowel is distended, for we know that there is usually no difficulty encountered suturing into the wall of obstructed small bowel. Removal of the tense cecum may be facilitated and distention of the terminal ileum may be relieved by using the aseptic suction enterostomy of Wangensteen, inserting it after the abdomen has been opened through the wall of the terminal ileum down through the ileocecal valve into the cecum. If one has already passed a gastrointestinal tube into the lower ileum this may be passed through the ileocecal valve into the cecum and thus decompress it.

Case 6.—A man, aged sixty-seven, experienced colicky lower abdominal pain at hourly intervals beginning August 13, 1945. On the following day there was marked abdominal distention with rigidity. A flat x-ray plate of the abdomen showed a coffee-bean distention of the sigmoid.

At operation on August 14 a volvulus of the sigmoid colon at the peritoneal reflection was resected and a primary end-to-end anastomosis made.

The patient was discharged on October 5, 1945.

This patient whom I operated upon at General Hospital is interesting for several reasons. His gas pains were characteristic of colon obstruction. His colics, instead of coming every five to ten minutes as they usually occur in small bowel obstruction, came hourly. His flat plate was beautifully characteristic of volvulus and his local findings of tenderness and marked rigidity and distention gave one no choice as to proceedure. At operation the volvulus was completely black and gangrenous and extended from the pelvic floor to the left rib margin. The twist was located at the peritoneal reflection and was too low to allow exteriorization so an end-to-end anastomosis was carried out. This patient's plasma proteins were very low and he completely eviscerated on the eighth day. He was taken back to the operating room and the abdominal wall was resutured. His subsequent convalescence was normal.

A couple of years ago Dr. Brunsgaard of Norway spent some time at the University and interested those who heard him speak before this society in his method of reducing volvulus by means of a proctoscope with the insertion of a soft rubber tube into the volvulus. He reported 136 successful treatments with four deaths. He cautioned that one must not try the method where there is any indication or question of impaired circulation or gangrene. While exteriorization by Michulitz procedure has usually been recommended as the operative procedure of choice in volvulus, he contends that the twist is usually too low to permit this type of operation, as was true in our case, and he recommends the inversion and burying of the distal stump and the making of a colostomy of the proximal end with re-anastomosis later.

In every obstruction of the colon, volvulus must be considered. It causes about 16 per cent of colon obstructions and, unless relieved, gangrene with perforation will usually result. It can easily be overlooked if one makes a transverse colostomy to relieve sigmoid obstruction and assumes that the obstruction there is due to carcinoma. A flat plate usually gives a characteristic picture, as does also a barium enema.

Dr. Baronofsky has been interested in this problem at the University of Minnesota. His feeling is that if there is evidence of gangrene that it is not safe to reduce by tube and proctoscope and that one should do an immediate resection and end-to-end anastomosis. If there is no evidence of gangrene, he feels that the volvulus should be reduced by Brunsgaard's method, and after several days, one should resect and do an end-to-end anastomosis.

These last five cases where bowel resection was carried out in the face of acute obstruction due to varied causes recommend strongly the closed type of anastomosis.

Throughout the country there is still considerable argument between the proponents of the open and the closed types of bowel resection. Personally I have used the closed method of resection in practically every case of bowel resection that I have done during the last ten years, and I am convinced that anyone who gets accustomed to using it will not abandon it for the open type of resection.

While the antibiotics have given the open type of resection a greater degree of safety, one should not rely on them completely for protection. I recently operated for a ruptured appendix. In spite of massive doses of penicillin, streptomycin and intravenous aureomycin, the patient developed three intra-abdominal abscesses that had to be drained. Moreover, experimental work has shown that there is firmer healing where there is no serosal contamination at the time of operation. Also, contamination of the peritoneal cavity, while it may not be serious in the unobstructed case, may attain real magnitude in the acutely obstructed patient, for that patient does not tolerate soiling of any degree. Moreover, when it is necessary to anastomose loops of bowel of different sizes, as is necessary in doing an end-to-end anastomosis between a large distended loop of small bowel to a small collapsed bowel, or when one unites small bowel to colon end-to-end, this can be done very easily when one does it over clamps. By varying the angle that the clamp is placed on the two loops of bowel, one can easily make the opening the same size in the ends to be joined together.

The arguments of those who advocate the open anastomosis hold true for the most part only in those cases where one has the time and opportunity to preoperatively sterilize the bowel content. In the five cases which we have just presented we had no chance to prepare the bowel. In all of these, done in the face of acute obstruction where haste was essential, the closed type of resection stood us in good stead. To me, they represent situations where the closed type resection attains its greatest value and gives your patient a protection from infection that you cannot give him in any other way.

Since Dennis published his artcile in 1943, I have used his method in bowel resection almost routinely and I like it very much. Using it, no end-to-end anastomosis has failed to open on scheduled time, and except for the patient cited here who died of a heart attack four days after operation, I have had no deaths. His method differs from others in that it requires a 45° rotation of each end of the bowel in opposite directions so that the mesentery of the distended loop will be on the opposite side to that of the collapsed loop. This means that in an end-to-end anastomosis instead of ending up with a junction with a 90° angle as is customary, one ends up with a straight tube.

Case 7.—A woman, aged thirty-nine, for two weeks ran a septic course with right abdominal pain and developed a mass in the right side of the abdomen.

On October 19, 1948, she was admitted to the hospital. The pain, mass and septic temperature persisted. Sulfasuxidine was started. A flat x-ray plate showed a mass on the right side and a dilated small bowel.

A barium enema on October 20 showed a narrowed terminal ileum. A flat plate on October 22 showed increasing small bowel distention.

At operation on October 22 a regional ileitis was found, with an abscess between the ileum and cecum. This was resected. An end-to-end anastomosis was made between the ileum and the transverse colon.

The postoperative temperature never went over 99.2° and the patient was discharged on January 30, 1948.

We present this case because it allowed us to accomplish something which was unique in our experience. At the time of operation we found dilated loops of small bowel terminating in a mass between the last foot of small bowel and the ascending colon. There, protected by the agglutinated bowels anteriorly and laterally and sealed by the parietal peritoneum posteriorly, was an abscess. Starting along the lateral wall of the ascending colon and getting into a line of cleavage behind the visceral peritoneum, we were able to remove the terminal ileum, cecum, ascending and right part of transverse colon which enclosed the abscess without rupture. An end-to-end anastomosis was carried out. Her temperature subsequent to operation never going over 99.2° is indicative of her uneventful convalescence. It is only on the rarest occasions that the anatomy makes it possible to remove an intra-abdominal abscess intact.

The results of surgical treatment of regional enteritis are notably poor. There is much argument whether one should do only a short circuiting operation or a radical resection of the diseased tissue. Operation should be postponed until the late stages of the disease and should be used primarily in the treatment of complications—obstruction, abscess, hemorrhage, fistulas, et cetera.

Case 8.—A woman, aged seventy-six, had a sudden onset of colicky abdominal pains with vomiting on November 24, 1947.

The colicky pains persisted the next day without flatus being expelled.

A flat x-ray plate of the abdomen taken November 26 showed a distended small bowel.

On November 28 a flat plate showed gas in the biliary tract.

On November 30 a flat plate showed the gas in the small bowel practically gone but much in the colon. On that day a gallstone 1.5 inches in diameter was extracted from the rectum.

An x-ray on December 1 showed that barium, taken orally, appeared in the biliary tract. The patient was discharged that day.

In the diagnosis of gallstone obstruction the most important thing is that it be considered as a possibility. If one thinks of it, it may be possible to work out a preoperative diagnosis. Until recent years the diagnosis preoperatively was indeed a rarity. Rigler and Borman called attention to air in the biliary passages as indicating the presence of a fistula between the bowel and the biliary tract. Clinically an obstruction that relents and recurs should suggest obturator obstruction. Tenderness is often present when gangrene is starting over the gallstone at the site of obstruction.

Treatment is usually early surgery though occasionally, as in this case, it is not necessary. There is no doubt in my mind that many gallstones pass through the fistula and the bowel, causing only partial obstruction without many symptoms.

Case 9.—A woman, aged forty, had an ovarian cyst removed by a gynecologist on November 25, 1947.

On December 1, 1947, she experienced mild gas pains. They became more severe two days later and were accompanied by emesis. A flat x-ray plate showed distended loops of small bowel.

On December 3, 1947, the patient was seen in consultation. A second operation was performed, and about two feet of the middle portion of the ileum were found glued together by firm adhesions. These were separated.

Convalescence was uneventful.

Obstructions occurring during the postoperative period always present a most difficult problem. This case is presented because it not only is unusual that such firm plastic adhesions should have formed so early, on the ninth day following operation, but also to show the change that has taken place in my feeling about the treatment of simple small bowel obstruction. A few years past we probably would have been content to treat this patient conservatively by an indwelling Levine or gastrointestinal tube—at least for a day or two. Instead, we operated on this patient within a few hours after seeing her. On finding the firm plastic adhesions that caused marked obstruction we had no regrets for doing so.

It is my feeling that in spite of the progress that has been made in making more efficient gastrointestinal tubes and better methods of getting them through the pylorus, that there is a definite trend away from the conservative therapy of intestinal obstruction. While conservative therapy using intestinal intubation often relieves the obstructing mechanism in adhesive obstruction, it is a blind uncertain method even when followed carefully with flat x-ray plate and leukocyte counts. Using this type of therapy one can very easily miss a necrosing adhesive band, a gallstone obstruction, an internal hernia, mesenteric thrombosis, intussusception, volvulus, et cetera. That this change of policy is taking place at the University of Minnesota which has been the center of conservative therapy in simple small bowel obstruction is shown by the following two quotations. Dennis in October 25, 1946, in the *Bulletin of the University of Minnesota Staff Meeting* states, "the general policy at the University hospital is to treat these cases of small bowel obstruction which appear simple, by nasal suction syphonage without operative interference." Dennis in October, 1949, in *Surgical Clinics of North America* states, "with our recent adoption of exploration of nearly all cases of small bowel obstruction, early recognition of strangulation has assumed less importance."

And there are good reasons for this change of attitude. For while the hazards of conservative therapy in simple mechanical obstruction remain constant, the dangers of operation have steadily lessened. Better anesthesia, the antibiotics, and the use of blood have been helpful here as in all types of surgery. Specifically, however, there are three major advances which have had a real influence. One of these is the aseptic suction enterostomy of Wangensteen which allows one to deflate distended loops of bowel so that one can see the obstructing point and can get at it without injuring distended loops of bowel. This is particularly useful in dealing with adhesive bands located in the pelvis.

The second is the aseptic resection method of Dennis which permits of easy end-to-end anastomosis in loops of bowel of different size. This can be used with little danger of peritonitis in acute obstructions where there has been no chance to prepare the bowel.

The third factor is the development of a better type of gastrointestinal tube and better methods of introducing same. Dr. John Wild has brought out a gastrointestinal tube that is a real improvement. The chief reason for this is that it has only one large suction opening protected on one side by the mercury sac and on the other by the air balloon so that the wall of the bowel is not sucked into the opening, thus plugging it. When this tube is used as an adjunct to the operative treatment of acute small bowel obstruction, it lends a margin of safety that really is a factor. For there is no question but that a well functioning gastrointestinal tube can overcome the toxic effects of distention better than any other method, and it has been amply demonstrated that distention is the major lethal factor in the cause of death in acute intestinal obstruction. For it has been shown, that even in the face of complete obstruction that toxemia and shock are not likely to occur if distention is controlled. Unless a well functioning gastrointestinal tube is used in conjunction with surgery, the toxic effects of distention may persist several days before the bowel can sufficiently regain its tone of function again.

One trouble in the past has been that we have used the tube to treat the obstruction instead of using the tube merely as a means to relieve distention. The fact that at times adequate decompression may so alter the obstructing mechanism so as to allow the obstruction to relent does not alter the fact that suction drainage is actually a means of controlling distention and as such it should be used.

If we keep this thought in mind we can place the intestinal tube in its proper place in our armamentarium used in the treatment of intestinal obstruction. As mentioned above, it has real value when used as an adjunct to the operative treatment of intestinal obstruction. Here it may be either introduced before operation where we may be able to quickly decompress distended loops and thus make our operation easier, or continuing with it or introducing it after operation, we can use it to offset the toxic effects of distention until such time as the bowel can take over its normal function again, often a matter of 4 to 5 days.

Intestinal intubation is the treatment of choice in neurogenic ileus. Here it has almost completely replaced catheter enterostomy for it functions better and is far safer. By a well functioning tube the patient is protected from the lethal factor of distention until such time as the bowel has recovered from the shock that has upset its nervous mechanism and has again started to function.

Another ideal place for the use of the intestinal tube is where an inflammatory mass or a diffuse peritonitis may cause either ileus or mechanical obstruction. In these cases if we can protect our patients from distention, we can tide them over while we use the powerful antibiotics that we now have at our command to control infection.

Dr. Grafton Smith has a new gastrointestinal tube with a removable obturator made up of three wires one of which is used to stiffen the tube and the other two are used to guide the tip in various directions. Using this under fluoroscopic guidance or on the operating table it is possible to direct the tip of the tube in practically any direction. It looks like the best yet.

Case 10.—A woman, aged fifty-eight, dated the onset of lower abdominal pain to the time she had been catheterized at the office of a urologist (November 5, 1948).

She was admitted to the hospital on November 8, 1948. There was marked abdominal distention. A cystogram failed to show any perforations of the bladder. A flat plate showed small and large bowel distention. A barium enema failed to show any obstruction in the colon.

A diagnosis of ileus was made and a Wild intestinal tube was inserted. The bowel was deflated in six hours, after which a mass could be felt in the appendix region.

No operation was performed and the mass subsided.

This last case represents a situation where the gastrointestinal tube demonstrated its effectiveness as a means of combating ileus secondary to an inflammatory mass. It had so well decompressed a markedly distended bowel in about six hours time that we were able to feel the appendicial mass and make a definite diagnosis.

In conclusion. if I were to make one plea or to leave one thought it would be for the more judicious use of both Levine and gastrointestinal tubes. A tube should never be put down before you make your diagnosis. As soon as a tube is inserted the picture changes, the patient improves and the physician relaxes. Let the clinical picture develop until you can make a diagnosis. Use every clinical and laboratory and x-ray help that you can command. Then, if you use a gastrointestinal tube, you should do it with a definite therapeutic purpose in mind. If you elect to treat a mechanical obstruction with a gastrointestinal tube, do it realizing that you are walking on thin ice and that you can easily fall into deep trouble.

Meeting of February 3, 1950

At this meeting, the twenty-eighth anniversary dinner meeting, Dr. Warren H. Cole, professor of surgery, University of Illinois, presented a paper entitled "Benign and Malignant Goiter."

Meeting of March 2, 1950

At this meeting Dr. Lawrence M. Larson and Dr. John H. Rosenow presented "Solitary Pyogenic Liver Abscess—Review of Literature and Report of Case." Dr. A. A. Zierold presented "Operating Room Cholangiograms."

Officers were elected as follows: Dr. Harvey Nelson, president; Dr. Robert P. Caron, vice president; Dr. Albert T. Hays, recorder for three years, and Dr. Robert F. McGandy, member of Council for five years.

William H. Rucker, M.D., *Recorder*

Woman's Auxiliary

DR. JUDD SPEAKS AT AUXILIARY WORKSHOP

Mrs. Leonard S. Arling

Approximately 100 county officers and state board members of the Woman's Auxiliary to the Minnesota State Medical association attended the third annual Workshop meeting, October 16, at the Saint Paul hotel.

After the morning board meeting, Auxiliary members heard an inspiring address by Dr. Walter H. Judd, Congressman from the Fifth District, "A Prescription for a Healthy Government." Highlights of Dr. Judd's talk are these:

"I have been thinking much lately of Abe Lincoln's remark at Gettysburg—'We are engaged in a great Civil War, testing whether that nation, or any nation, so conceived and so dedicated can long endure.' Early Americans knew what made this country great, but do the succeeding generations understand what made the American system of government strong? Never has our system of government—the system our forefathers left Europe to found—been in such danger. Our system of government puts primary concern upon the many—government from the bottom up. Our system releases the great creative capacities in each individual. Would a bureaucratic dictatorship select a half-illiterate garage mechanic (Henry Ford) to put the world on wheels? Or would a half-deaf butcher (Edison) have been asked to light the world and produce the phonograph and the movies?

"We are in the midst of a great world conflict and also a conflict within America—the struggle between two philosophies of life: one, that the state should guarantee happiness, security, and keep absolute control of the individual, and two, that the state should only guarantee the right of the individual to pursue happiness, to have the freedom to take risks, to make his own decisions.

"Doctors and their wives have an obligation as citizens of our republic—

Six Obligations

"1. Don't be a radical who says that three-fourths of Americans can afford adequate medical care, one-fourth cannot, therefore let's throw out the whole thing and start over with compulsory health insurance.

"2. Don't be a conservative and say that nothing is wrong.

"3. Be a progressive conservative and strive to keep what is good, continuing to improve what is bad.

"4. Work night and day to show that which is good in our government.

"5. Speak out for the things we believe.

"Karl Marx' ideas changed the world. We can do it constructively as others do it destructively.

"6. Doctors and their wives should help select candidates, work in county and district and state caucuses to nominate candidates. Doctors and their wives should help elect candidates by voting themselves and seeing that others get out and vote."

Mrs. Waas Presides

Afternoon speakers were Mrs. Harold F. Wahlquist, Minneapolis, president-elect, Woman's Auxiliary to the American Medical Association: "Medicine's Educational Program;" Miss Helen K. Johnson, Saint Paul, assistant medical claims manager, Minnesota Medical Service: "Growing Pains;" Allan Stone, Saint Paul, executive director, Minnesota Division, American Cancer Society;" Mrs. James P. Tyrell, Saint Paul, chairman, Board of Directors, Antone Guild: "Our Lady of Good Counsel Cancer Home;" and the main speaker, Mrs. Leo J. Schaefer, Salina, Kansas, first vice president, Woman's Auxiliary to the American Medical Association: "The Auxiliary at Work."

The educational film "Breast Self-Examination" was shown.

Mrs. Charles W. Waas, president, Woman's Auxiliary to the Minnesota State Medical Association, presided at the meeting. Mrs. Roger S. Countryman was chairman.

BLUE EARTH COUNTY AUXILIARY HELPS SPONSOR HEALTH DAY

Mankato's second Health Day, held October 11, was a "Community Mental Health Day," sponsored by the Blue Earth County Medical Society and Auxiliary, Blue Earth-Nicollet Counties' Citizens' Mental Health Committee, District Health Unit No. 2 of the Minnesota Department of Health, Mankato State Teachers College, and the Mankato Branch, American Association of University Women.

Dr. H. J. Nilson, councilor of the Fourth District, Minnesota State Medical Association, presided during the afternoon session.

Outlines State Program

Minnesota's Mental Health Program was outlined by Dr. Ralph Rossen, commissioner of mental health, and Justin Reese, acting secretary, Minnesota Mental Health Council. Two films were shown: "Life With Junior" and "Preface to a Life." The afternoon session concluded with the panel discussion, "The Emotional Development of the Child," Dr. William S. Chalgren, Mankato neurologist and psychiatrist, moderating; Mrs. J. E. Wettleson and Dr. Harry R. Meyering, both of Mankato Teachers College; Rev. Charles L. Duxbury, pastor, First Christian Church, Mankato; Emil M. Meurer, juvenile probation officer, Blue Earth, Nicollet and Le Sueur counties; participating.

How Parents React

Dr. A. A. Schmitz, president, Blue Earth County Medical Society, presided at the evening meeting. Dr. Roger W. Howell, associate professor of neuropsychiatry, University of Minnesota, talked on "Parents' Reactions to Their Children."

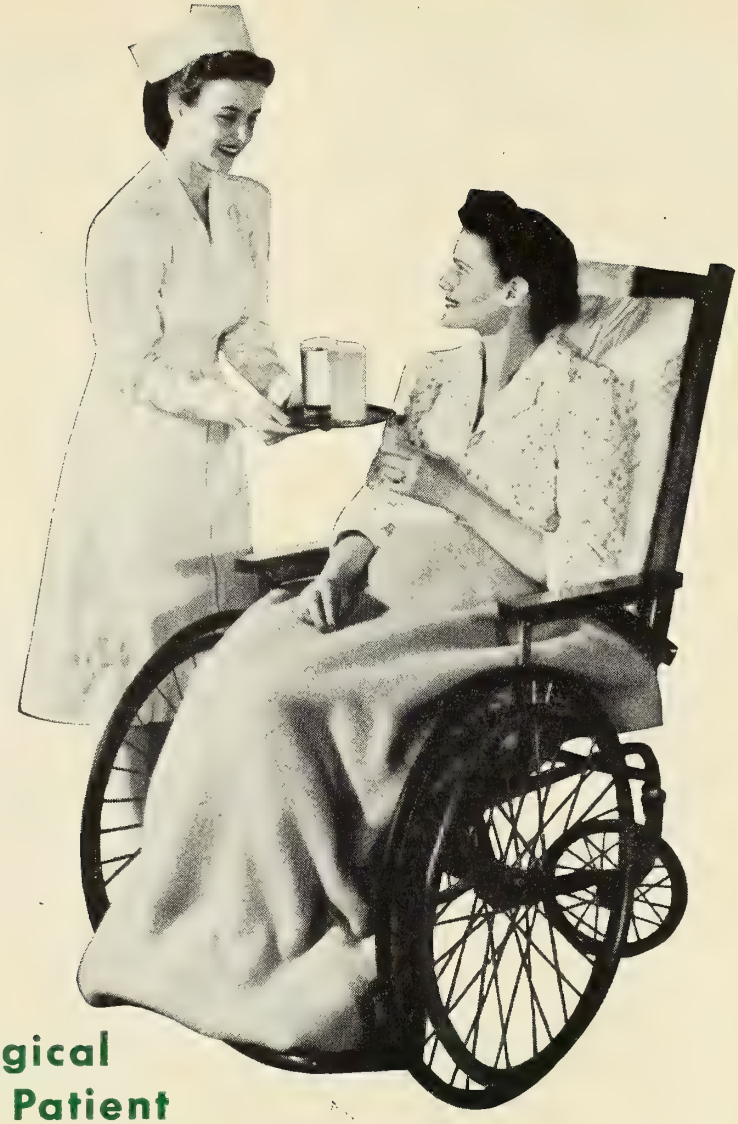
Dr. A. G. Liedloff, medical director of District Health Unit No. 2, Minnesota Department of Health, was general chairman. Miss Alberta Marshall of the A.A.U.W. and Mrs. W. B. Kaufman were co-chairmen of general arrangements with a committee made up of members of the medical auxiliary and Citizens Mental Health Committee.

A MESSAGE FROM THE CHAIRMAN

Mrs. Benjamin B. Souster

This year, as in the past, the editors of MINNESOTA MEDICINE are being most generous in the space given us for Auxiliary news. For the continued interest of readers, the Woman's Auxiliary to the Minnesota State

(Continued on Page 1146)



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RESEARCH IN THE SERVICE OF MEDICINE **SEARLE**

◆ Reports and Announcements ◆

MINNESOTA SOCIETY OF NEUROLOGY AND PSYCHIATRY

The regular meeting of the Minnesota Society of Neurology and Psychiatry was held at the Town and Country Club, Saint Paul, on November 14. The scientific program consisted of the presentation of the following papers: "Treatment of Subarachnoid Hemorrhages and Aneurysms" by Dr. Paul S. Blake, Hopkins, and Dr. Lyle A. French, Minneapolis; "Clinical Application of the Electroencephalogram" by Dr. V. Richard Zarling, Minneapolis.

CONTINUATION COURSES

Clinical Chemistry.—The University of Minnesota announces a continuation course in clinical chemistry for internists, pediatricians, and general physicians, December 7 to 9. Dr. John T. Merrill of Boston, Massachusetts, will be the visiting faculty member for the course.

Obstetrics.—A continuation course in obstetrics will be presented at the University of Minnesota on December 15 and 16. The course is intended for general physicians. Visiting faculty members for the course will include Dr. Emil G. Holmstrom, University of Utah Medical School,, Salt Lake City, Utah; Dr. Curtis J. Lund, Louisiana State University Medical School, New Orleans, Louisiana, and Dr. Charles E. McLennan, Stanford University Medical School, San Francisco, California.

Geriatrics.—The University of Minnesota announces a continuation course in geriatrics for internists and general physicians January 4 to 6. Distinguished visiting physicians who will participate as faculty members for the course include Dr. E. V. Cowdry, St. Louis, Missouri; Dr. William Dock, Brooklyn, New York; Dr. Nathan Shock, Bethesda, Maryland; Dr. E. J. Stieglitz, Washington, D. C., and Dr. E. L. Tuohy, Duluth, Minnesota.

Clinical Neurology.—Distinguished physicians who will participate as faculty members in a continuation course in clinical neurology to be presented by the University of Minnesota at the Center for Continuation Study from January 29 to February 10 are as follows: Dr. Pearce Bailey, Georgetown University School of Medicine, Washington, D. C.; Dr. H. W. Magoun, University of California Medical School; Dr. Henry Schwartz, Washington University School of Medicine, St. Louis, and Dr. S. Bernard Wortis, New York University Medical Center. Dr. Magoun will also deliver the annual J. B. Johnston lecture on the subject, "Wakefulness and Sleep."

PARKINSON'S DISEASE FOUNDATION

Plans of the newly organized Parkinson's Disease Foundation, with national headquarters at 744 Broad Street, Newark, N. J., were recently announced. Officials stated that plans are being made for setting up units of the Foundation in the major cities of the United States, to provide treatment for persons afflicted with the disease, of whom there are estimated to be one million sufferers.

Medical advisors for the Foundation include Dr. John C. Button, Jr., medical director of the Button Neurological Institute, Orange, N. J., Dr. Thomas Meyers of the Meyers Clinic, and Dr. K. G. Bailey, neurosurgeon of the Los Angeles County Hospital, both of Los Angeles, California.

RICE COUNTY SOCIETY

Dr. J. J. Kolars, Faribault, was elected secretary-treasurer of the Rice County Medical Society at a meeting held in Faribault on September 26. The post of secretary-treasurer was the only office for which an election was held.

The principal topic for discussion at the meeting was the problem of civil defense in the area. Dr. C. W. Rumpf, Faribault, was the principal speaker and moderator in the discussion.

STEARNS-BENTON COUNTY SOCIETY

At the October meeting of the Stearns-Benton County Medical Society, Dr. Gordon R. Kamman, Saint Paul, presented a talk on "Psychosomatic Medicine."

Dr. Reuben F. Erickson, Minneapolis, chairman of the Policy Committee of the Minnesota State Medical Association, was also a guest speaker at the meeting.

WABASHA COUNTY SOCIETY

The eighty-second annual meeting of the Wabasha County Medical Society was held at Wabasha on October 5.

During the afternoon business session officers were elected to serve as follows: Dr. William P. Gjerde, Lake City, president; Dr. Doreen A. Martin, Wabasha, vice president; Dr. W. F. Wilson, Lake City, secretary, and Dr. B. A. Flesche, Lake City, assistant to the secretary. The society members also discussed and endorsed participation in the current educational campaigns and public health programs.

Preceding the evening scientific session, Dr. A. J. Chesley, executive officer of the Minnesota State Board of Health, discussed medical preparedness in civil defense.

The scientific session consisted of the following presentations: President's Address, "Acute Pancreatitis" by the retiring president, Dr. L. M. Ekstrand, Wabasha; "A Review of the More Common Neurologic Disorders" by Dr. L. M. Eaton, Rochester; a color motion picture, "An Improved Technique for the Operative Treatment of Common Anorectal Lesions."

Thirty-two persons attended the dinner held between the business and scientific sessions. During the evening the ladies attending were entertained at the home of Dr. and Mrs. Ekstrand.

WRIGHT COUNTY SOCIETY

Dr. W. E. Hall, Maple Lake, was elected president of the Wright County Medical Society at its meeting at Buffalo on October 10. Also named to office were Dr. Waldo Anderson, vice president, and Dr. Theodore Catlin, secretary-treasurer, both of Buffalo.

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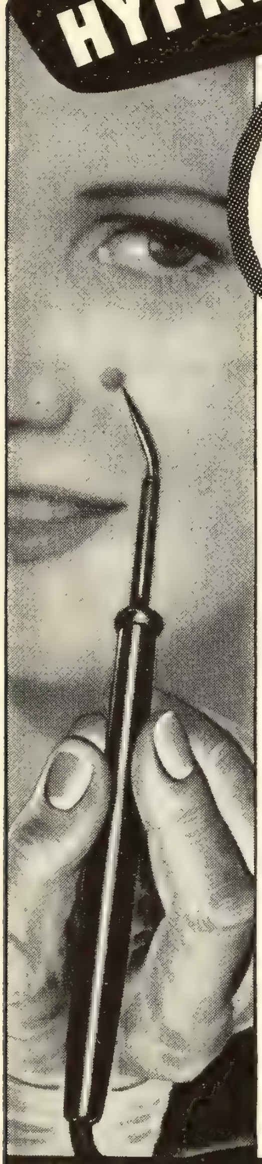

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In Memoriam

OTIS O. BENSON, SR.

Dr. Otis O. Benson, Sr., eighty-three, of Willmar, Minnesota, died in Minneapolis on October 16 following a protracted illness. Uremia was given as the immediate cause of his death. Funeral services were conducted in Minneapolis on October 19 with final interment at Jeffersonville, Ohio.

Dr. Benson was born in 1867 at Jeffersonville. He took his B.A. degree from Ohio Northern University at Ada, Ohio. He also graduated from the University of Iowa in 1898, and from Rush Medical College in 1902. A life-long member of the American Medical Association, he retired in 1947 after more than forty-five years practice.

He is survived by two children: Brig. Gen. Otis O. Benson, Jr., Commandant of the U. S. Air Force School of Aviation Medicine, Randolph AFB, Texas, and Mrs. L. A. Utrecht of South Charleston, Ohio.

NIMROD A. JOHNSON

Dr. Nimrod A. Johnson, a surgeon in Minneapolis prior to his retirement in 1936, died at his home in Santa Monica, California, September 6, 1950, following a cerebral hemorrhage.

Dr. Johnson was born in Saint Paul, October 1, 1880. He graduated from the University of Minnesota medical school in 1905, and interned at Swedish Hospital, Minneapolis. He practiced general surgery in Minneapolis and with his brother, Dr. Norton T. Johnson, founded the Bloomington-Lake Clinic.

Dr. Johnson was an affiliate member of the Hennepin County Medical Society, the Minnesota State Medical Association, the American Medical Association and the American College of Surgeons. He was also a Mason and a member of the Scottish Rite and Zuhrah Temple of the Shrine.

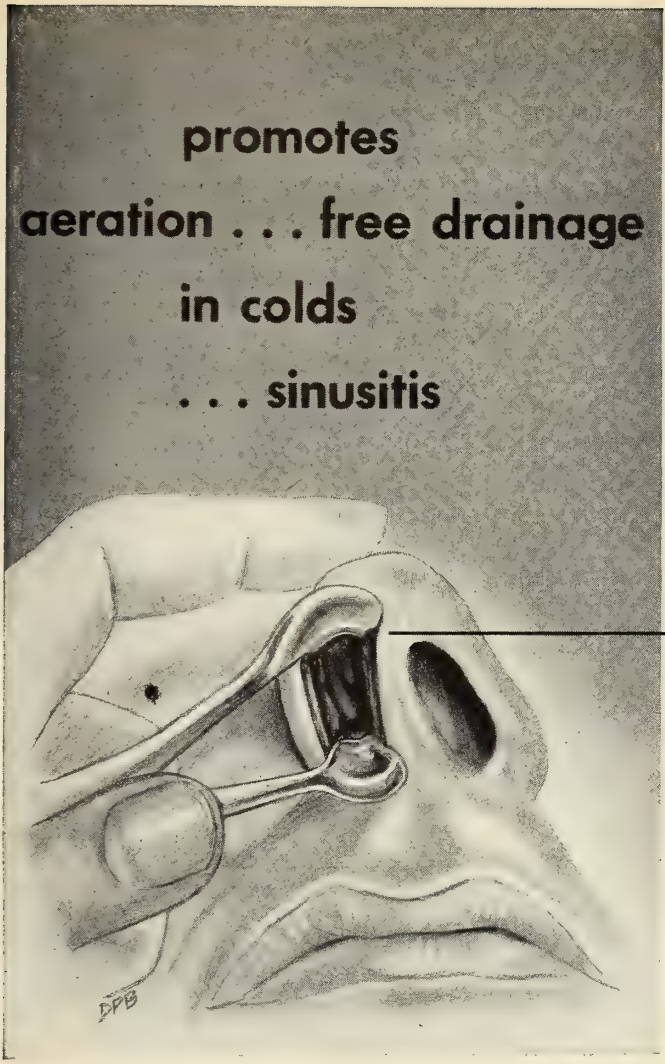
Besides his brother, Dr. Johnson is survived by his wife, Florence, and two daughters, Mrs. Clifford F. Traff, Minnetonka Beach, and Mrs. Jerome Hiniker, Falls Church, Virginia.

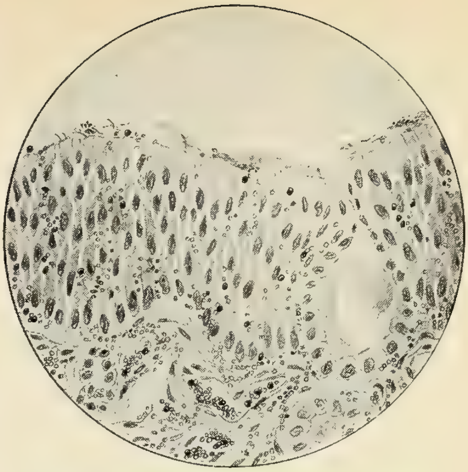
WOMAN'S AUXILIARY

(Continued from Page 1142)

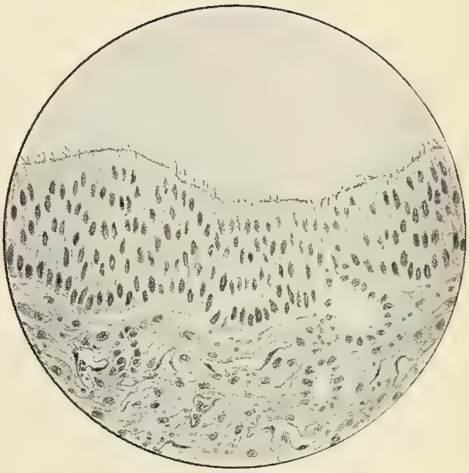
Medical association is eager to hear from every county in the state.

Articles on newly organized Auxiliaries and plans for the coming year will be greatly appreciated, as well as information about local meetings, programs and Health Days. These may be sent to Mrs. B. B. Souster, 1333 Bohland Place, Saint Paul 5, Minnesota. Personal news items may be sent to the chairman of the Newsletter, Mrs. L. S. Arling, 2310 E. 43rd St., Minneapolis, Minnesota.




Nasal membrane showing increased leukocytes with denudation of cilia.

Normal appearing nasal epithelium.



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✦ Of General Interest ✦

Dr. Philip S. Hench and **Dr. Edward C. Kendall,** of the Mayo Clinic, and **Dr. Jadeusz Reichstein,** of the University of Basel, have been awarded the Nobel Prize in medicine for 1950. The prize money, amounting to 164,303 crowns ($31,715), will be divided between the three doctors and presented to them at Stockholm on December 10. It was Dr. Kendall who discovered cortisone about ten years ago and Dr. Hench who applied it clinically in the treatment of rheumatoid arthritis. Dr. Reichstein shared in the development of the chemistry of the extracts.

* * *

Word has been received that **Dr. Alexander M. Boysen,** a graduate of the University of Minnesota Medical School in 1948, was reported on July 12 as missing in action in Korea. Six weeks later notification was received by his wife that Dr. Boysen was being held as a prisoner of war.

A native of Minnesota, Dr. Boysen served his internship at St. Francis Hospital, Pittsburgh, Pennsylvania. He then accepted a three-year Army clinical residency and was assigned to Madigan General Hospital at Fort Lewis, Washington. He was sent to Yokohama, Japan, in May of 1950 for ninety days of temporary duty. While there he was assigned to the 24th Infantry Division and sent to Korea. At the time of his capture by the North Koreans he held the rank of captain in the medical corps.

* * *

On October 4, **Dr. John F. Madden,** Saint Paul, spoke before the permanent and consulting staffs of the Veterans Hospital at Lincoln, Nebraska, on the subject, "Cutaneous Manifestations of Internal Diseases."

* * *

Dr. C. G. Uhley, Crookston, spoke on a radio program entitled "Cancer on Trial," which was presented over station KROX, Crookston, on September 20. Dr. Uhley is the local chairman for the Minnesota Division of the American Cancer Society.

* * *

Dr. William F. Braasch of Rochester was named president of the Minnesota Public Health Association at its annual meeting in Coffman Memorial Union, October 24. He succeeds Edward A. Knapp, Saint Paul attorney, who has been president for several years.

* * *

Dr. John M. Fallon of Wooster, Massachusetts, was elected president of the **Mayo Foundation Alumni Association** at the annual meeting on October 20. Other officers elected were Dr. John L. Kleinhechsl, Wichita, Kansas, first vice president; Dr. Nat H. Copenhaver, Bristol, Tennessee, second vice president; Dr. James F. Weir, Rochester, secretary, and Dr. Edward S. Judd, Rochester, associate secretary and treasurer.

Dr. Thomas J. Kinsella, Minneapolis, is retiring president.

* * *

Six nurses with many years of service to the cause of tuberculosis were honored with a dinner in Coffman Memorial Union on October 24. Two Saint Paul nurses are Sibba Axford, chief nurse at Mineral Springs Sanatorium at Cannon Falls from 1924 to 1948 and who is now a supervisor at St. Luke's hospital in Saint Paul, and Margaret Weikert, resident director of the Ramsey County Childrens Preventorium and a staff member there for thirty-three years. The four others are: Mrs. Sue T. Naysmith, head of the department of nursing at Glen Lake Sanatorium from 1920 until her retirement in 1941; Mathilda Hallberg, who is now employed at Southwestern Minnesota Sanatorium in Worthington; Alice Sorenson, chief nurse at Granite Falls; and Lulu Healy, who was chief nurse at Minnesota State Sanatorium, Ah-Gwah Ching, from 1917 until 1940.

More than 200 Christmas seal workers from all Minnesota counties attended the dinner and were addressed by Leigh Mitchell Hodges, Philadelphia columnist and one of the founders of the Christmas seal campaign. Dr. E. M. Hammes, Sr., presided at the meeting which was in connection with a course in tuberculosis control for lay persons given at the University.

* * *

Dr. Dewey E. Moorehead of Owatonna was elected grand high priest of the Minnesota Royal Arch Masons at the annual meeting of the organization in Saint Paul on October 10.

* * *

Dr. Lloyd S. Nelson, Minneapolis, spoke on "Rheumatic Fever in Children, with Special Emphasis on the Differential Diagnosis" at a meeting of the Lyon-Lincoln County Medical Society at Marshall on October 10, The meeting was part of the forty-second semi-annual clinic course sponsored by the society.

* * *

Dr. Carl J. Lind, formerly of Minneapolis, has been promoted from lieutenant colonel to colonel at the Brooke Army Medical Center, Fort Sam Houston, Texas, where he is chief of the laboratory service. A graduate of the University of Minnesota Medical School, Dr. Lind took four years of postgraduate work in surgery and roentgenology at the university. He also specialized in pathology.

* * *

Dr. W. F. Mercil was away from Crookston during the last two weeks of September while he at-

(Continued on Page 1150)

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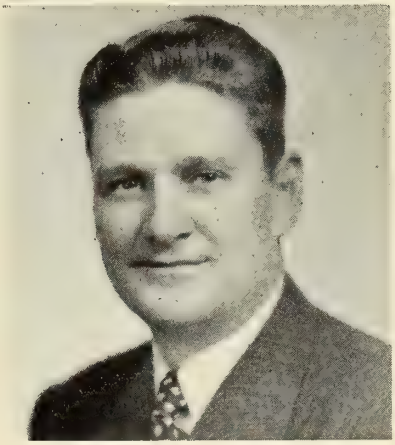

THE MINNESOTA MUTUAL LIFE INSURANCE COMPANY

1880 — 70th Anniversary — 1950

(Continued from Page 1148)

tended meetings of the Central Obstetrical and Gynecological Society at Milwaukee and at Chicago. He also attended a three-day conference at the University of Minnesota Center for Continuation Study.

* * *

September 16 was Dr. Farrish Day at Sherburn. On that day **Dr. Robert C. Farrish,** who has completed fifty years of medical practice, celebrated his eighty-third birthday and received congratulatory messages from his friends. The day was proclaimed in his honor by the mayor of Sherburn.

* * *

Dr. John J. Bittner, director of cancer biology at the University of Minnesota and George Chase Christian professor of cancer research, was presented with the second annual Minnesota award of the American Cancer Society at a dinner in Coffman Memorial Union on September 22.

* * *

Technicians, nurses, bookkeepers, secretaries and receptionists employed by members of the Hennepin County Medical Society have organized a new group, the **Medical Assistants of Hennepin County.** First president of the organization is Dorothy Reid. Civil defense volunteer work with the Red Cross is one of the first projects of the group.

* * *

Dr. Russell J. Moe, Duluth, became president of the Central Association of Obstetricians and Gynecologists at its annual meeting in Milwaukee late in September. Dr. Moe was named president-elect at the 1949 meeting of the group in St. Louis. He has been a member of the executive committee since 1941.

* * *

Late in September **Dr. Chester J. Olson** moved his office and residence into his newly constructed, combination office-and-home building in Belle Plaine. The modern structure contains twelve rooms, six used for the office and six for living quarters. The entire building is heated by a radiant heating system.

* * *

The private duty nurses of the **Minnesota Nurses Association** decided at their meeting held in the Nicollet Hotel, Minneapolis, in October, to raise their rates, effective in the near future. The fee for the eight-hour periods from 7 a.m. to 3 p.m. and 11 p.m. to 7 a.m. will be increased from $10 to $12, and the shift from 3 p.m. to 11 p.m., from $11 to $13. They also decided that when more than one patient is being nursed the rate will be $16 for the shifts of 7 a.m. to 3 p.m. and 11 p.m. to 7 a.m., and $17 for the 3 p.m. to 11 p.m. shift. Also, types of nursing which formerly required an additional dollar, such as the nursing care of a mother and baby, tuberculosis patients and those with contagious diseases, drug addicts, alcoholics and mentally ill now will require two dollars additional.

* * *

Dr. Harold S. Diehl, dean of medical sciences at the University of Minnesota, was appointed by the

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Municipal Bonds and Inflation

Perhaps the most common problem confronting an investor today concerns the problem of inflation and its eventual effect upon his savings. Mr. Phillips Barbour, Editor of the Bond Buyer, addressed the Municipal Forum of the National Security Traders Association recently on this problem—the quotations below are from this address:

> "No sure way to avoid the ravages of inflation, if present, has yet been discovered. Our discussion today is not intended to find a cure for the malady, however, but to point out some of the reasons municipal bonds, in my opinion, will aid the American investor greatly in maintaining an investment portfolio in as healthy a condition as is possible in the present inflation and why he should not put all his eggs in the equity basket.
>
> "Investments of many kinds have been suggested as suitable in these circumstances . . . none supplies the perfect solution in practice. The more popular suggestions include real estate, farm lands, growing trees, aging liquor, breeding live stock, jewels and precious stones, works of art and, of course, commodities and common stocks or equities.
>
> "The ideal investment, under present conditions, is one which provides:
>
> (1) Safety of principal—that is the most important requisite.
>
> (2) Dependability of income—the larger the better, but regardless of size, it should be dependable.
>
> (3) Opportunity for growth—in both principal and interest.
>
> (4) It must be realistic. There is a limit to the number of investors who can breed cattle, for instance.
>
> "Obviously, the majority of the suggestions I have mentioned do not fit entirely satisfactorily into the pattern of requirements specified. Where they may possess one good feature, they are deficient in others.
>
> "Even after determining the category to be used, the problem of choosing the particular unit, or units, to be bought is often the block over which the buyer stumbles. A decision must be made as to the particular farm, commodity, work of art, or stock, which should be bought after the die is cast, as to the category which is practicable for the investor to employ. All oil stocks don't invariably go up or all real estate always improve in value."

That portion of Mr. Barbour's address showing how municipal securities meet the requirements of the ideal investment outlined above, will appear in the next article.

We have reprints of Mr. Barbour's address available and will be pleased to send you one. without obligation, upon request.

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President on October 4 to a seven-member commission to advise Selective Service on the drafting of physicians and dentists for the armed forces. The commission is headed by Dr. Howard Rusk, physician-writer for the *New York Times*.

* * *

Dr. Russell O. Sather, Crookston, presented one of the panel discussions on practical problems of health officers at a meeting of Minnesota health officers in Minneapolis on September 25. Dr. Sather's topic was "Small Town Housing."

* * *

Excavation for construction of a new office building in North Saint Paul began late in September. When completed, the building will house the offices of **Dr. A. E. Muller** of North Saint Paul.

* * *

The city council of Biwabik on October 2 accepted the resignation of **Dr. R. B. Bray** as health officer and approved the hiring of **Dr. S. C. Blackmore** as health officer. Dr. Bray's resignation followed his announcement that he had sold his hospital and was moving to Rapid City, South Dakota (see Hospital News).

* * *

This year, as in previous years, the **Ramsey County Medical Society**, not content to let the Community Chest campaign alone, sent letters to all members of the society, urging them to contribute generously to the Community Chest. In addition, a special committee of the society organized speeches by campaign leaders to the medical staffs of the city's hospitals. Such direct solicitation by the medical society, it was announced, has raised the percentage of participation of doctors in Saint Paul to 86, in contrast to a 64 per cent average in thirty-one selected cities.

* * *

It was announced on September 14 that **Dr. George L. Stuhler** had become associated in practice with Dr. N. T. Norris of Caledonia. Dr. Stuhler, it was stated, would remain in Caledonia until the time arrives for him to begin his fellowship at the Mayo Clinic. A graduate of the University of Minnesota Medical School, he served his internship at the Detroit Receiving Hospital.

* * *

Dr. Frederick L. Behling, Oklee, attended a short course in diseases of children at the Children's Memorial Hospital in Chicago during the middle of September.

* * *

Dr. William S. Chalgren, Mankato, was the principal speaker at a meeting of the fifth district of the Minnesota Nurses' Association in Mankato on September 11. Dr. Chalgren's topic was "Mental Mechanism."

* * *

Appointment of **Dr. Charles W. Mayo,** Rochester, to the board of judges for the annual Dr. C. C. Criss award was announced on October 25 by the Mutual Benefit Health and Accident Association of Omaha, Nebraska. The award, named for the founder of the firm, consists of $10,000 and a gold medal and goes to the individual who, in the judges' opinion, has made the greatest contribution to public health and/or safety during the year.

* * *

Dr. Lloyd C. Gilman, Willmar, left for Chicago on October 9 to take a two-week postgraduate course in fractures at the Cook County Hospital.

* * *

Sanborn lost its only physician on October 21 when **Dr. Aldridge F. Johnson** moved to Indianapolis to become assistant superintendent of the Sunnyside Tuberculosis Sanitorium there. Dr. Johnson, who formerly was on the staff of the state sanitorium at Roseau, practiced at Sanborn for almost two years.

* * *

Dr. A. J. Chesley, director of the Minnesota Health Department, and his assistant, **Dr. Robert Barr,** attended the United States Public Health Service Conference in Washington, D. C., October 23 through 27. Medical aspects of civil defense were discussed at the conference.

* * *

An address by **Dr. John E. Haavik,** Duluth, was a feature of a meeting of the Duluth Multiple Sclerosis Club on September 19.

* * *

Dr. Karl R. Lundeberg, former resident of Minneapolis and a graduate of the University of Minnesota Medical School, has been named director of preventive medicine at the Army's medical field service school, Fort Sam Houston, Texas.

* * *

The **Mayo Clinic emeritus staff** now numbers thirty-one members, seven of whom no longer live in Rochester.

* * *

Construction has been completed on the new office building of **Dr. E. E. Zemke** and **Dr. William Misbach** in Fairmont. The modern-designed structure houses two consultation rooms, four examining rooms, laboratory, first aid room, pediatric room, rooms for x-ray and other diagnostic apparatus, and an office suite for a dentist.

* * *

Both the Hennepin County and Ramsey County Medical Societies now offer a **telephone answering service** to enable the public to obtain immediate medical attention at any hour of the day or night. The service is designed to aid persons who cannot reach their own physician—or do not have one—when a medical emergency arises. The service is especially valuable to persons who have recently moved to Minneapolis or Saint Paul and who do not know a physician.

The telephone number of the service in Saint Paul, conducted by the Ramsey County Medical Society,

(Continued on Page 1154)

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(Continued from Page 1152)

is CEdar 5751. The number of the Minneapolis exchange, operated by the Hennepin County Medical Society, is FIllmore 1411.

Any patient who is cared for by a physician on one of these emergency calls is billed only by the individual physician. There is no charge for the special telephone service, which is offered to each community as a public service by the members of the two medical societies.

* * *

Dr. A. G. Sanderson has resigned as superintendent of the Deerwood Sanatorium and has accepted a position on the staff of the Anoka State Hospital.

* * *

Dr. Raymond C. Magnuson and Miss Janet Joyce Widen, daughter of Dr. W. F. Widen of Minneapolis, were married in Minneapolis on September 16. They are now living in Cambridge. Dr. Magnuson is a graduate of the University of Minnesota Medical School.

* * *

Dr. F. Lionel Pickett, a general practitioner in England, was guest speaker at a meeting of the Kiwanis Club in Duluth on September 13. He stated that he disliked the British medical plane "intensely," and he pointed out that the program is defective because: (1) it will probably ruin England financially since it already operates at a loss of $900,000,000 annually; (2) the health of British people is deteriorating under the plan; (3) specialists have a far too heavy patient load and are being forced to become general practitioners.

* * *

Dr. Curtis M. Johnson, formerly of Jackson, has become affiliated in practice with Dr. M. I. Hauge at the Clarkfield Clinic.

* * *

A law providing for vitamin and mineral enrichment of all bread offered for public sale was urged by **Dr. Russell M. Wilder,** Rochester, at a meeting of the American Bakers Association in Chicago on October 17. Dr. Wilder said that the dietary qualities of enriched bread should be improved through the use of more non-fat milk solids.

* * *

Dr. Walter H. Judd, Representative from Minnesota's Fifth District, was a featured speaker at the third annual Workshop of the Woman's Auxiliary to the Minnesota State Medical Association in Saint Paul on October 16. The title of his talk was "A Prescription for a Healthy Government."

* * *

Four Rochester physicians were guest speakers at the fifteenth annual assembly of the United States Chapter, International College of Surgeons, in Cleveland from October 31 to November 3. The four speakers were Dr. Virgil S. Counseller, Dr. Stuart W. Harrington, Dr. John S. Lundy, and Dr. Gershom J. Thompson. President-elect of the organization is Dr. Henry W. Meyerding of Rochester.

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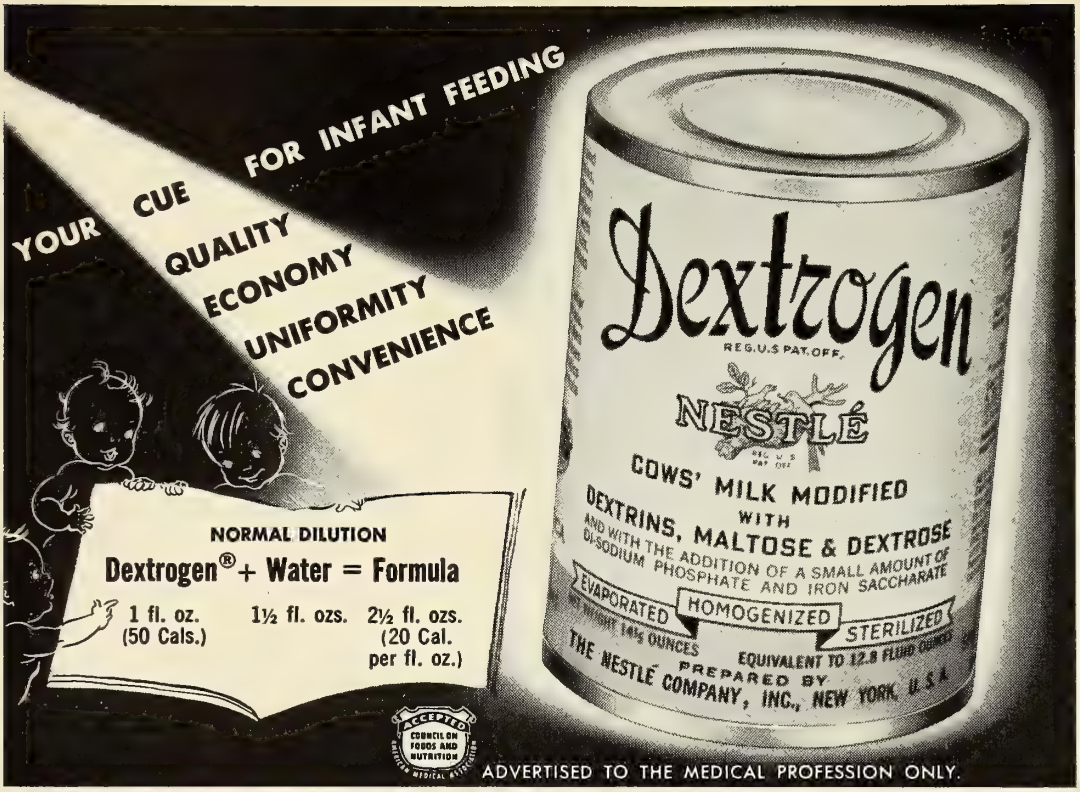
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The late **Dr. E. H. Loofbourrow**, former Keewatin school physician, was honored at a memorial program staged by Keewatin students on September 21. A feature of the program was the presentation of a picture of Dr. Loofbourrow to the school by the Keewatin High School Class of 1950. Dr. Loofbourrow, who was school physician from 1915 to 1948, died last year.

* * *

Dr. Loren J. Larson moved to Buffalo during the middle of October and became associated in practice with Dr. John J. Catlin and Dr. Theodore J. Catlin. A graduate of the University of Minnesota Medical School, Dr. Larson has practiced in Watertown for the last two years.

* * *

Dr. David P. Anderson, Austin, was elected to the state board of directors of the Minnesota Division of the American Cancer Society at a meeting of the group in Minneapolis on September 22.

* * *

Dr. Maurice N. Walsh, formerly of Rochester, has become chief of medical neurology for the Veterans Administration in Topeka, Kansas, and a training candidate in the Topeka Institute of Psychoanalysis, Menninger Foundation.

Dr. Walsh, a graduate of the Detroit College of Medicine and Surgery, moved to Rochester in 1934 where he became a fellow in medicine at the Mayo Clinic. Later he transferred to neurology and became a member of the staff in 1937. During World War II he served as a psychiatrist with the Army Air Force in the South Pacific area.

* * *

It was announced on September 22 that **Dr. Joseph S. Emond** of Farmington was moving his offices to a new location in the city. The new offices, in the Feely Building, were being completely remodeled and redecorated.

* * *

The two new **geriatrics buildings** at the Rochester State Hospital were dedicated on November 2, with Governor Luther W. Youngdahl as the principal speaker. At the ceremonies, held in the administration building's auditorium, thirty-six persons who have been employed at the hospital for twenty-five years or more were also honored.

* * *

In Blackduck, **Dr. Harry A. Palmer** has moved his offices into his newly completed building, the Blackduck Clinic. The modern-designed structure contains eleven rooms, including reception room, treatment rooms, x-ray room, private offices, and a dental suite. The dental suite is occupied by Dr. S. L. Conley.

* * *

Two former fellows in the Mayo Foundation were awarded alumni association prizes at a reunion in Rochester on October 19. **Dr. C. A. M. Hogben,** now a National Research Council fellow in medical sciences in Denmark, was given a prize for a paper entitled "The Renal Excretion of Phosphate." **Dr.**

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B. H. Scribner, now a first assistant in medicine at the Mayo Clinic, was awarded a prize for research on the application of water chloride balance technique to the clinical management of problems of fluid balance.

* * *

Before **Dr. Edwin Rose,** chief medical officer of the Minneapolis Veterans Hospital, was transferred to the Washington office of the Veterans Administration, he was honored at a dinner in Minneapolis on October 18 given by members of the Minneapolis chapter of the Disabled American Veterans.

* * *

Dr. Ralph J. Gampell, former British physician, discussed socialized medicine under bureaucratic control at a meeting of the Saint Paul Association of Commerce on October 20. Dr. Gampell, who left England in April, 1949, "to find freedom in medicine as well as freedom as an individual," as he states, spoke under the auspices of the national education campaign of the AMA. He is now a resident of San Francisco, where he recently completed an internship and was licensed to practice.

* * *

Almost immediately after moving to Bagley to be associated in practice with Dr. L. J. Larson, **Dr. George Miners** left for North Carolina in September to complete a ten-week course for a degree for which he had been working. Following completion of the course, he expects to return to Bagley to begin permanent practice.

His colleague, **Dr. L. J. Larson** of Bagley, was honored for his twenty-five years of service in the community at a banquet given by the Bagley Civic and Commerce Association on September 12. Dr. K. W. Covey, Mahnomen, was the principal speaker at the banquet.

* * *

Dr. O. K. Behr, Crookston, discussed the subject, "Know Your Heart," on a radio broadcast over station KROX, Crookston, on October 18.

* * *

A cancer teaching clinic for members of the medical profession from Minnesota and Wisconsin was held in Duluth on October 18. The principal speaker at the meeting was **Dr. Alexander Brunschwig,** professor of clinical surgery at Cornell University Medical College, who spoke on "Radical Surgery in Advanced Cancer of the Female Genital Tract." The clinic was sponsored by medical societies of Minnesota and Wisconsin and by the state health departments and the state divisions of the American Cancer Society.

* * *

Dr. Edwin G. Knight, Swanville, who was injured in an automobile accident on September 1, returned to his home on September 17, expecting to be back in his office on a limited basis within a short time. It was expected, however, that a few weeks would pass before his fractured right arm would heal sufficiently to enable him to assume his full duties.

(Continued on Page 1158)

An Observation on the Accuracy of Digitalis Doses

Withering made this penetrating observation in his classic monograph on digitalis: "The more I saw of the great powers of this plant, the more it seemed necessary to bring the doses of it to the greatest possible accuracy."[1]

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1. *Withering, W.:* An account of the Foxglove, London, 1785.
2. *Rimmerman, A. B.:* Digilanid and the Therapy of Congestive Heart Disease, Am. J. M. Sc. *209:* 33-41 (Jan.) 1945.

Literature giving further details about Digilanid and Physician's Trial Supply are available on request.

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Surgical Technic, Surgical Anatomy and Clinical Surgery, four weeks, starting November 6, February 5.
Surgical Anatomy and Clinical Surgery, two weeks, starting November 20, February 19.
Surgery of Colon and Rectum, one week, starting November 27.
Gall-Bladder Surgery, ten hours, starting April 23.

GYNECOLOGY—Intensive Course, two weeks, starting February 19.
Vaginal Approach to Pelvic Surgery, one week, starting March 5.

OBSTETRICS—Intensive Course, two weeks, starting March 5.

RADIATION PHYSICS—Intensive Review Course, four days, starting November 29.

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(Continued from Page 1156)

Dr. Viktor O. Wilson, health officer of the Rochester-Olmsted County Public Health Unit, was elected president of the Minnesota Public Health Conference in Minneapolis on September 25 and 26. He succeeds Dr. F. W. Behmler of Morris.

* * *

Dr. Kenneth L. Buresh, formerly of Baxter, Iowa, moved to Westbrook early in September and began practice. He and Dr. John V. Carlson, the only other physician in Westbrook, are occupying new offices in a recently remodeled building in the city. Dr. Buresh is a graduate of the University of Iowa.

* * *

Forty-three years of medical practice in Detroit Lakes were ended late in October when **Dr. James E. Carman** closed his offices and moved to Glendale, California. A graduate of the University of Minnesota Medical School, Dr. Carman began his Detroit Lakes practice in 1907, a few years after his graduation.

* * *

The week of November 12 to 18 was designated as **Diabetes Detection Week,** during which the American Diabetes Association and its affiliates conducted the annual diabetes detection drive with the co-operation of the nation's physicians. All persons were asked to go to their own physicians for free diabetic examinations. In many cities arrangements were made with the city health department to examine urine specimens, and drug stores were designated as collection depots for the specimens. By such methods members of the national organization expected to discover about a million persons throughout the country who have diabetes without knowing it.

* * *

More than 200 guests attended an open house given for **Dr. Gustave L. Rudell,** Minneapolis, in honor of his seventy-fifth birthday on September 24. Born in Sweden, Dr. Rudell came to America in 1892 and attended the University of Minnesota Medical School. He is still actively engaged in his medical practice.

HOSPITAL NEWS

It was announced in Biwabik late in September that the **Biwabik Hospital** had been sold by Dr. Robert B. Bray to Dr. Sidney C. Blackmore. Dr. Blackmore, who has been associated in practice with Dr. Bray for the past five years, said that the operation of the hospital would continue in the same manner as in the past.

Dr. Bray, who has been owner and manager of the hospital for the past thirteen years, since the death of his father, the late Dr. C. W. Bray, planned to remain in Biwabik until an assistant could be found for Dr. Blackmore. He then planned to move to Rapid City, South Dakota.

The hospital, one of the first to be built on the Mesabi Range, was originally constructed about

(Continued on Page 1160)

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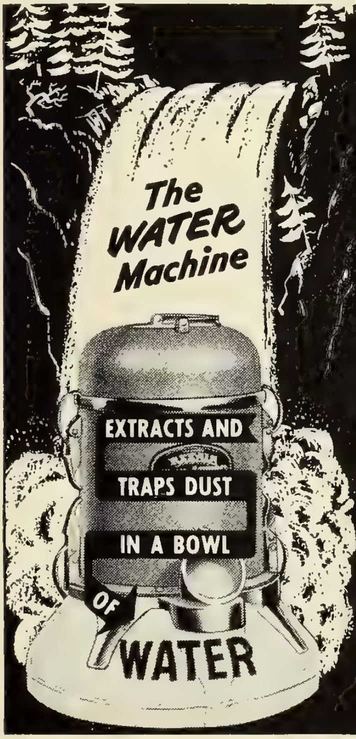

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(Continued from Page 1158)

1892. The building was destroyed by fire in 1906 and was rebuilt by Dr. C. W. Bray. The Bray family has owned the hospital since that time.

* * *

Dr. D. E. Stewart, a member of the Northwestern Clinic staff in Crookston, was elected president of the medical staff for **Bethesda Hospital,** Crookston, at a meeting on September 26. Other officers include Dr. G. S. Boyer, vice president, and Dr. A. R. Jensen, secretary, both members of the Northwestern Clinic staff.

* * *

Dedication ceremonies for the new twenty-one bed **Wheaton Community Hospital** were held in Wheaton on October 2. Ceremonies included a program at the school auditorium and a tour of the hospital.

* * *

Construction of a million-dollar addition to **St. John's Hospital,** Saint Paul, is expected to begin about March 1. The new wing will house seventy-five beds, a children's section, physical therapy department, a new chapel, and increased surgical, obstetrical, laboratory, administrative and service space.

* * *

An organizational meeting of the medical staff of the new **Wells Hospital** was held in Wells on October 5. Officers were elected as follows: Dr. Richard P. Virnig, chief of staff; Dr. William H. Barr, vice president, and Dr. Mark P. Virnig, secretary-treasurer, all of Wells.

BLUE CROSS-BLUE SHIELD NEWS

Enrollment in Minnesota Medical Service, Inc., as of August 31, 1950, was 372,187, an increase of 111,686 to date this year. Blue Cross enrollment as of the same date totaled 1,029,718 participant subscribers.

Payments to doctors for the month of August totaled $193,848 or 66.8 per cent of cash earned income and to date this year payments total $1,321,836 or 71 per cent of the cash earned income compared with $676,694 or 73.8 per cent for the same period last year. Blue Shield claims for the month of August totaled 4,911 and provided payment for 5,877 medical-surgical services, an increase of 299 claims or 405 services over the July payment. The total amount paid during the month amounted to $193,847.65, an increase of $20,544.33 over the month of July. The first eight months of 1950 Blue Shield claims totaled 33,358 cases in the amount of $1,321,836.17.

Payments to unlimited subscribers amounted to 28.3 per cent of the total payments to doctors during August. The payments to doctors for unlimited subscriber claims paid during the first eight months of 1950 totaled $391,443.52 or 29.6 per cent of the total payments compared with 19.3 per cent during the same period of 1949.

During the month of August payment was made for 466 tonsillectomies. The number of surgical services paid during the month increased from 3,123 or 57.1 per cent in July to 3,285 or 55.9 per cent in August. 3,776 claims or 76.9 per cent of the total paid were incurred in hospitals during August compared with 77.1 per cent during July. Payments for these hospitalized cases totaled $176,850.15 compared with the July total of $158,448.07. Claims for services rendered in doctor's offices totaled 1,121 or 22.8 per cent of total compared with 22.3 per cent during July.

On the year to date figures we show that 32,015 claims have been paid to participating doctors in a total amount of $1,258,173.37 with 652 claims being paid to non-participating doctors in the amount of $33,864.08 and 691 claims in the amount of $29,798.72 being paid to out-of-state doctors.

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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

PRINCIPLES AND PRACTICE OF SURGERY. Jacob K. Berman, A.B., M.D., F.A.C.S., Associate Professor of Surgery, Indiana University School of Medicine; Associate Professor of Oral Surgery, Indiana University School of Dentistry; Chief Consultant in Surgery, Billing's Veterans Administration Hospital, Fort Benjamin Harrison, Indiana; Director of Surgical Education and Surgical Research, Indianapolis General Hospital. 1378 pages. Illus. Price $15.00, cloth. St. Louis: C. V. Mosby Co., 1950.

PROGRESS IN GYNECOLOGY. Volume II. Edited by Joe V. Meigs, M.D., Clinical Professor of Gynecology, Harvard Medical School; Chief of Staff of Vincent Memorial Hospital, the Gynecological Service of the Massachusetts General Hospital; Surgeon, Pondville Hospital; Gynecologist, Pamer Memorial Hospital; and Somers H. Sturgis, M.D., Clinical Associate in Gynecology, Harvard Medical School; Assistant Surgeon, Massachusetts General Hospital, Boston. 821 pages. Illus. Price $9.50, cloth. New York: Grune & Stratton, 1950.

MANAGEMENT OF OBSTETRIC DIFFICULTIES. Fourth Edition. Paul Titus, M.D. Obstetrician and Gynecologist to St. Margaret Memorial Hospital, Pittsburgh; Consulting Obstetrician and Gynecologist to the Shadyside Hospital, Pittsburgh; Secretary of the American Board of Obstetrics and Gynecology; Member Reserve Consultants Advisory Board, Bureau of Medicine and Surgery, United States Navy (Captain, MC, USNR). 1046 pages. Illus. Price $14.00, cloth. St. Louis: C. V. Mosby Co., 1950.

OSLER APHORISMS, From His Bedside Teachings and Writings. Collected by Robert Bennett Bean, M.D.; edited by William Bennett Bean, M.D. 158 pages. Price $2.50, cloth, New York: Henry Shuman, Inc., 1950.

NATIONAL FORMULARY—Ninth Edition. 877 pages. Illus. Price $8.00 ($8.75 outside United States), cloth. Washington, D. C.: American Pharmaceutical Association, 1950.

THE ANTIHISTAMINES; THEIR CLINICAL APPLICATION, by Samuel M. Feinberg, M.D., Associate Professor of Medicine, Chief of Division of Allergy and Director of Allergy Research Laboratory; Saul Malkiel, Ph.D., M.D., Assistant Professor of Medicine, Director of Research, Allergy Research Laboratory; Alan R. Feinberg, M.D., Clinical Assistant in Medicine, Attending Physician in Allergy Clinic, Northwestern University Medical School. 291 pages. $4.00. Chicago: The Year Book Publishers, Inc., 1950.

"The Antihistamines" by Drs. S. M. Feinberg, S. Malkiel and A. R. Feinberg is a concisely written book covering the subject adequately. The monograph is divided essentially into two divisions. The first section deals with experimental studies in relation to histamine and antihistamines, while the second section deals with clinical observations as noted by the authors and other investigators. In the section dealing with experimental studies, the following subjects are covered sufficiently, but each topic is not delved into deeply: (a) Histamine and its role in allergy, (b) The chemistry of the antihistamines, (c) The pharmacology of the antihistamines, (d) The antihistamines in experimental hypersensitivities, and (e) The bioassay of antihistamines in man. In the section discussing the clinical observations the following factors and conditions are covered: (a) Respiratory allergy, (b) Dermatoses, (c) Miscellaneous medical manifestations, (d) Administrations and recommended dosage of the various drugs, (e) and The toxic effects of the commonly used antihistamines. Besides the two

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main divisions in the book, there is a lengthy, complete (to date), useful appendix that lists all American-produced antihistamines (prescription, not over the counter packages) along with their accepted dosage, and the name of the pharmaceutical company that markets them. The bibliography lists 583 references which represents a good sampling of the over-abundant current and historical literature on the subjects discussed in the text.

The book itself is well-organized and follows a definite pattern; however, each chapter could be read independently without disrupting any continuity of thought. There is a tendency toward repetition in some of the clinical as well as the experimental chapters, and this might detract partially if one reads the book through from cover to cover. However, if one uses the book as a reference manual, this fault then becomes a benefit, as one is able to find a more complete scope of information by reading only the chapter in which he might be interested at the time.

This manuscript is one that is well worth having on any library shelf, but like so many books written on a subject that changes rapidly and progresses quickly, its clinical value is lost and outmoded soon after being released from the press, and it readily becomes a historical reference rather than a current digest.

Irvine M. Karon, M.D.

PARKINSON'S DISEASE. Advice and Aid for Sufferers of Parkinson's Disease and Other Physical Disabilities. By Walter Buchler. 75 pages. Price $1.00 and $2.00 cloth. Mr. Walter Buchler 101, Leeside Crescent, London, N. W. 11, England.

This little book is the author's account of his experiences as a patient with Parkinson's disease and his recommendations, advice, and philosophy arising therefrom. Most of the chapters are written in the second person. The book covers a wide range of subjects—aids in walking, care of the feet, manner of dress and style of clothing most suitable to the sufferer, diet, "table tactics" housing, furniture, planning for work, entertainment, and social events.

The information in this book is not new, but it reminds the physician that treating a patient with physical disability involves much more than drug therapy. The importance of management of the patient as a person is the primary consideration, and some helpful topics for consideration are found here. For the patient, this book offers some helpful hints as well as sympathetic insight into living with a disabling illness.

R.D.M.

PEPTIC ULCER. A. C. Ivy, M. I. Grossman, and W. H. Bachrach. 1144 pages. Price $14.00. Philadelphia and Toronto: The Blakiston Co., 1950.

Doctor Ivy and his associates have made an outstanding contribution to Medical Science in this volume. An enormous amount of material, summarizing the most significant experimental and clinical studies relating to gastric and duodenal ulcer, has been skillfully organized and well presented.

The volume is divided into four sections: Introduction to the Problem of Peptic Ulcer; Pathogenesis; Diagnosis, and Treatment.

Each chapter in the book is concluded with a summary, and each section is concluded with a summarizing chapter. This device adds much to the clarity of the presentation and assists the reader to a better understanding of the ulcer problem as a whole.

The authors, conversant as they are with the subject, are eminently qualified to present such a critical review. The value of the book is emphasized by Dr. A. J. Carlson who has said: "This is a *must* book, not only for our colleagues in general practice but also for our colleagues in internal medicine, surgery, psychiatry and physiology."

George S. Bergh, M.D.

OUT OF MY LIFE AND THOUGHT. Albert Schweitzer. New York: Henry Holt & Co., 1933 and 1949.

This autobiography of a remarkable theologian, musician and physician—all in one—first appeared in 1933 but attracted little attention. The 1949 printing of a revised volume with a postscript by Everett Skilling, close friend of Dr. Schweitzer and chairman of the Albert Schweitzer Fellowship, has had several printings.

Albert Schweitzer, an Alsatian, had already acquired distinction as a theologian, philosopher and musician when at the age of thirty he decided to study medicine after hearing of the great need for physicians in Lam-

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barane, Africa. Against the advice of friends who argued he was throwing away his great talents, he acquired a medical degree and fulfilled his ambition of establishing a hospital on the edge of an African jungle for the care of natives. The relation of the seemingly insurmountable obstacles he encountered, his method of maintaining his organ playing technique, his eventual triumph through eliciting the interest and support of citizens of many countries proves fascinating reading. That anyone could have the stamina to accomplish so much in a lifetime makes the ordinary industrious individual seem a sluggard. Truly Dr. Schweitzer's life is a demonstration of the truth that "he that loseth his life for my sake shall find it."

—C. B. D.

SURGICAL AND MAXILLOFACIAL PROSTHESIS. Oscar Edward Beder, D.D.S. 51 p. Illus. Photo offset printing. Paper bound, New York: King's Crown Press, Columbia University, 1949. Price, $3.00.

In a brief, concise manner the author, who is dental surgeon in charge of the Surgical and Maxillofacial Prosthesis Clinic at Columbia University-Presbyterian Medical Center, defines and sets forth techniques, step by step, in splints, stents, protective shields in radiation therapy, obturators, corrective appliances for missing portions of the mandible, extraoral impressions, somatoprosthesis and cranial prosthesis. It is a practical and well-organized aid-book if one already has some basic knowledge of prosthetic materials.

Jerome A. Hilger, M.D.

HARVEY CUSHING: SURGEON, AUTHOR, ARTIST. Elizabeth H. Thomson. Foreword by John F. Fulton. 347 p. Illus. New York: Henry Schuman, 1950. Price, $4.00.

Harvey Cushing's friendship with Minnesota's John Fulton, professor of physiology at Yale's Sheffield Scientific School, is elaborated upon in this biography. Fulton wrote a long, detailed life of Cushing in which his own friendship with Cushing is depreciated. Hence, this friendship is examined in this book, which is shorter to save the reader time and spare him detail.

Cushing was a man of tremendous energy and gigantic accomplishments. He was such a giant among his fellow-surgeons that his behavior in the operating room was widely imitated. Cushing was a great surgeon, great author and a splendid artist. He was a friend to all the

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great surgeons of the last half century—Kocher, Crile, the Mayo Brothers, Lord Moynihan, Fritz, Halsted, Lewis and Dean.

This book reveals Cushing as an intensely hard working, ambitious, courageous, hot-tempered surgeon who was tremendously interested in, and had tremendous identification with, his patients. He was moody, easily depressed and always overworked. His capacities were amazing. He was a bibliophile, collector of incunabula, an artist, a Pultizer Prize winner for his Sir William Osler biography; his monographs on brain tumors are the foundation stones for modern neurosurgery. He did make many trips to Europe, visiting historic medical sites, clinics and attending meetings. He rarely left the Eastern area of the United States, however, to visit the West.

Coleman J. Connolly, M.D.

THE COMMON HEMORRHAGIC DISEASES OF CHILDHOOD

(Continued from Page 1101)

control the hemorrhage. Pseudo-hemophilia (Von Willebrand's disease) may occur in children but it is a rare clinical entity.

Summary

The hemorrhagic diseases occurring in children may be congenital or acquired. The most common congenital disease is hemophilia. The diagnosis of this entity has been facilitated by the prothrombin consumption test. The importance of local treatment in controlling hemophilic bleeding is stressed. Congenital hypoprothrombinemia simulates hemophilia. Of the acquired hemorrhagic diseases, the hypoprothrombinemia of the newborn deserves recognition since it can be prevented by giving vitamin K to the mother. Thrombocytopenic purpura is a commonly acquired hemorrhagic disease. Usually recovery is spontaneous, but a small number of cases require splenectomy.

BIRTH AND STILLBIRTH CERTIFICATES

(Continued from Page 1132)

twenty weeks of gestation has been completed. Instead of the previously required birth and death certificate only a single stillbirth form is now necessary.

The Committee of Fetus and Newborn of the American Academy of Pediatrics defines a *premature infant* as one whose weight is 5 pounds, 8 ounces, (2500 grams) or less, regardless of estimated period of gestation and other criteria. In weeks of gestation, prematurity is the period from the beginning of the twenty-eighth week to the end of the thirty-seventh week. However, the period of gestation is notoriously unreliable and hence, birth weight is the more generally accepted definition.

A study of birth certificates shows a considerable discrepancy between the birth weight and full term or prematurity. Some 300 certificates listed infants weighing less than 5½ pounds as full term, while a similar number listed infants with weights of from 6 to 9 pounds as premature infants.

During the last twenty years a great and increasing interest has been taken in the incidence of tuberculosis in nurses and the methods to be used in an endeavour to reduce this. It is now clearly recognized that nurses, even in general hospitals where tuberculosis is rigidly excluded, run a far greater risk of developing this disease than do comparable members of the general population. Geoffrey Bewley, M.D. Dubl., *The Lancet,* March 25, 1950.

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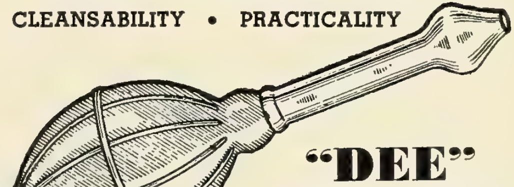

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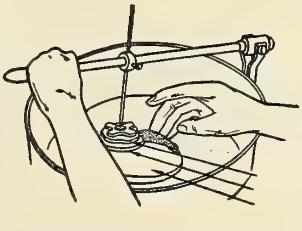

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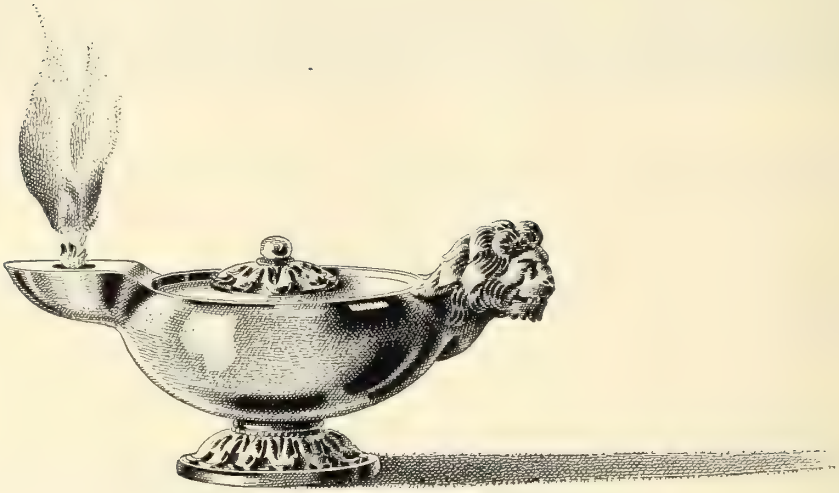

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Entered at the Post Office in Saint Paul as second class mail matter. Accepted for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized July 13, 1918.

MINNESOTA MEDICINE

OFFICIAL JOURNAL OF THE MINNESOTA STATE MEDICAL ASSOCIATION

Published by the Association under the direction of its Editing and Publishing Committee

Office of Minnesota State Medical Association,
493 Lowry Medical Arts Bldg., Saint Paul 2, Minnesota.

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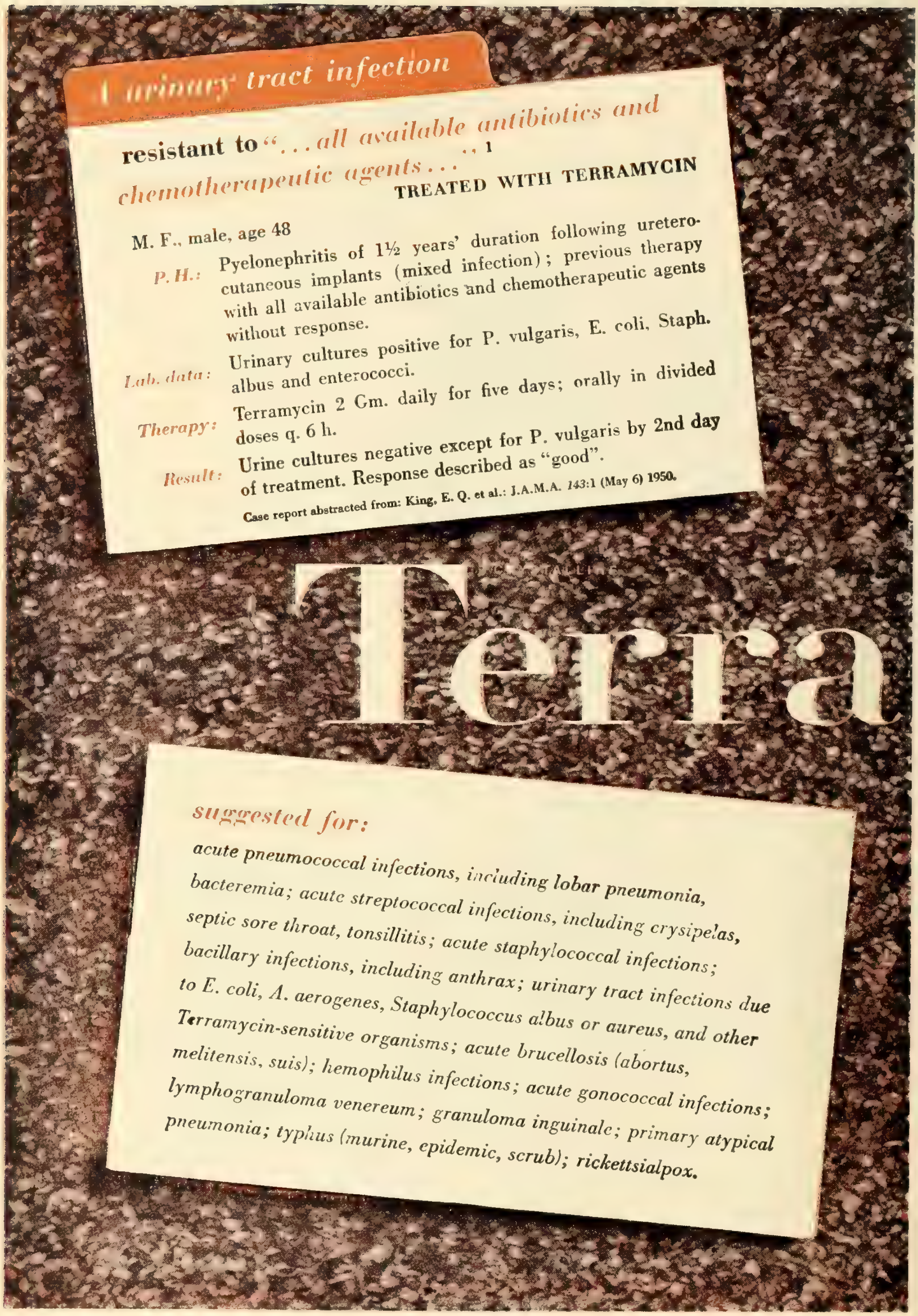

A urinary tract infection

resistant to *"...all available antibiotics and chemotherapeutic agents..."*[1]

TREATED WITH TERRAMYCIN

M. F., male, age 48

P. H.: Pyelonephritis of 1½ years' duration following ureterocutaneous implants (mixed infection); previous therapy with all available antibiotics and chemotherapeutic agents without response.

Lab. data: Urinary cultures positive for P. vulgaris, E. coli, Staph. albus and enterococci.

Therapy: Terramycin 2 Gm. daily for five days; orally in divided doses q. 6 h.

Result: Urine cultures negative except for P. vulgaris by **2nd day** of treatment. Response described as "good".

Case report abstracted from: King, E. Q. et al.: J.A.M.A. 143:1 (May 6) 1950.

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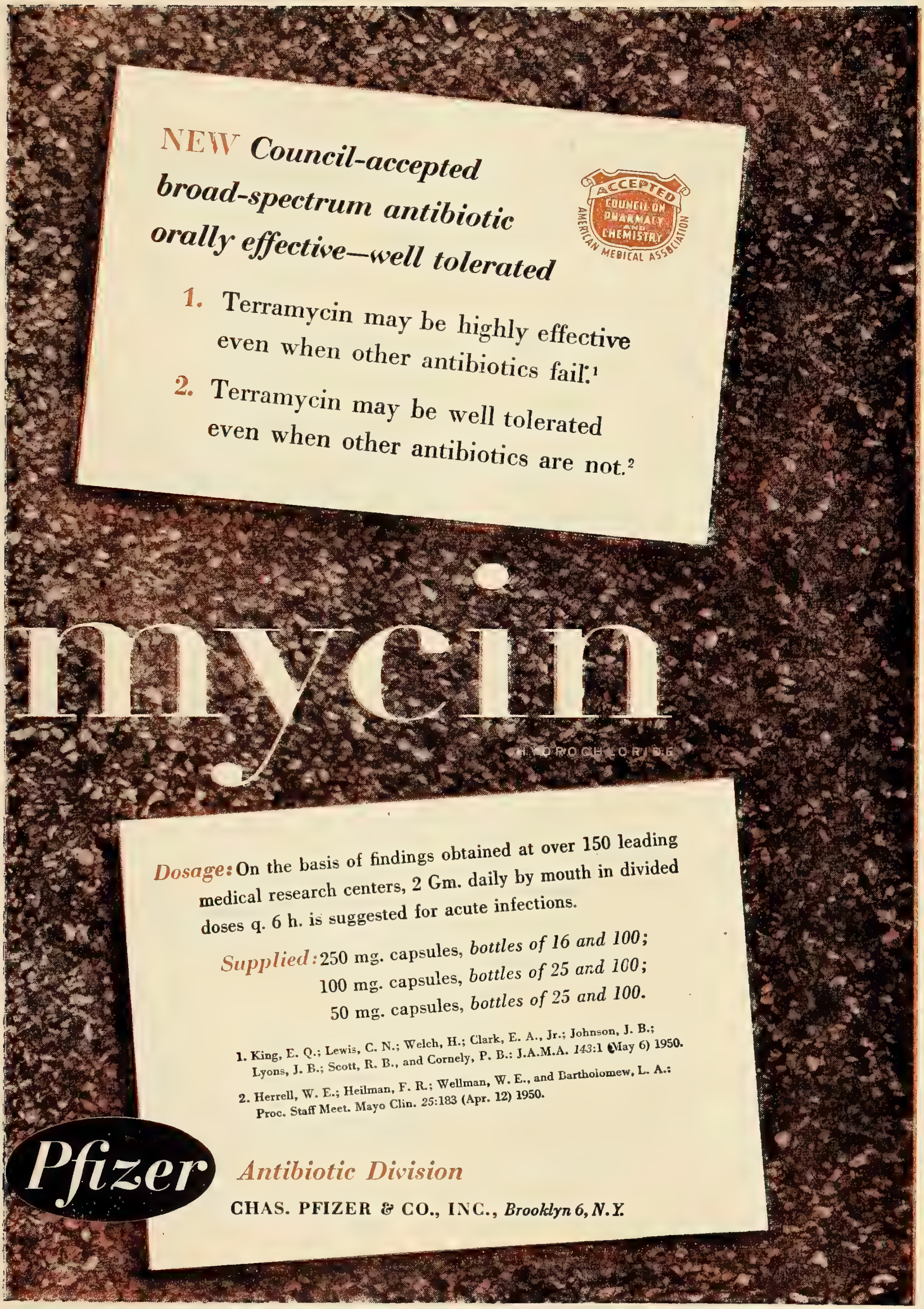
suggested for:

acute pneumococcal infections, *including* ***lobar pneumonia,*** *bacteremia; acute streptococcal infections, including erysipelas, septic sore throat, tonsillitis; acute staphylococcal infections; bacillary infections, including anthrax; urinary tract infections due to E. coli, A. aerogenes, Staphylococcus albus or aureus, and other Terramycin-sensitive organisms; acute brucellosis (abortus, melitensis, suis); hemophilus infections; acute gonococcal infections; lymphogranuloma venereum; granuloma inguinale; primary atypical pneumonia; typhus (murine, epidemic, scrub);* ***rickettsialpox.***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1. King, E. Q.; Lewis, C. N.; Welch, H.; Clark, E. A., Jr.; Johnson, J. B.; Lyons, J. B.; Scott, R. B., and Cornely, P. B.: J.A.M.A. *143*:1 (May 6) 1950.
2. Herrell, W. E.; Heilman, F. R.; Wellman, W. E., and Bartholomew, L. A.: Proc. Staff Meet. Mayo Clin. *25*:183 (Apr. 12) 1950.

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Effect of a single oral dose of PRONESTYL in ventricular premature contractions

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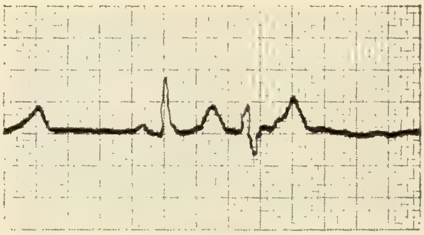
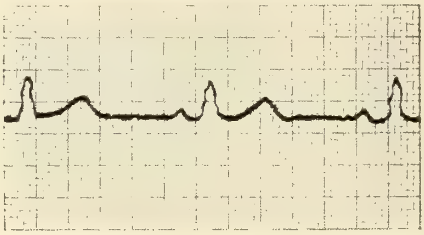
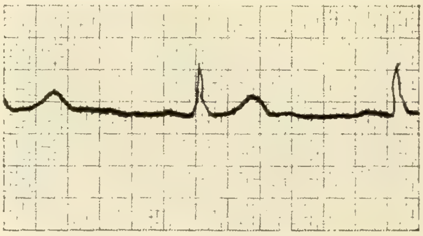
Control tracing:
normal sinus rhythm,
ventricular extrasystole.



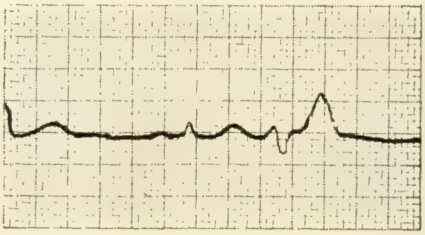
Lead II.
Tracing 30 minutes after
1 Gm. Pronestyl orally.
No ventricular premature
contractions present



Lead II.
Tracing 7½ hours
later shows
persistent effect



Lead II.
Tracing 24 hours later
shows return of
ventricular premature
contractions.



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1. Bauer, G.: Angiology 1: 161-169 (Apr.) 1950.

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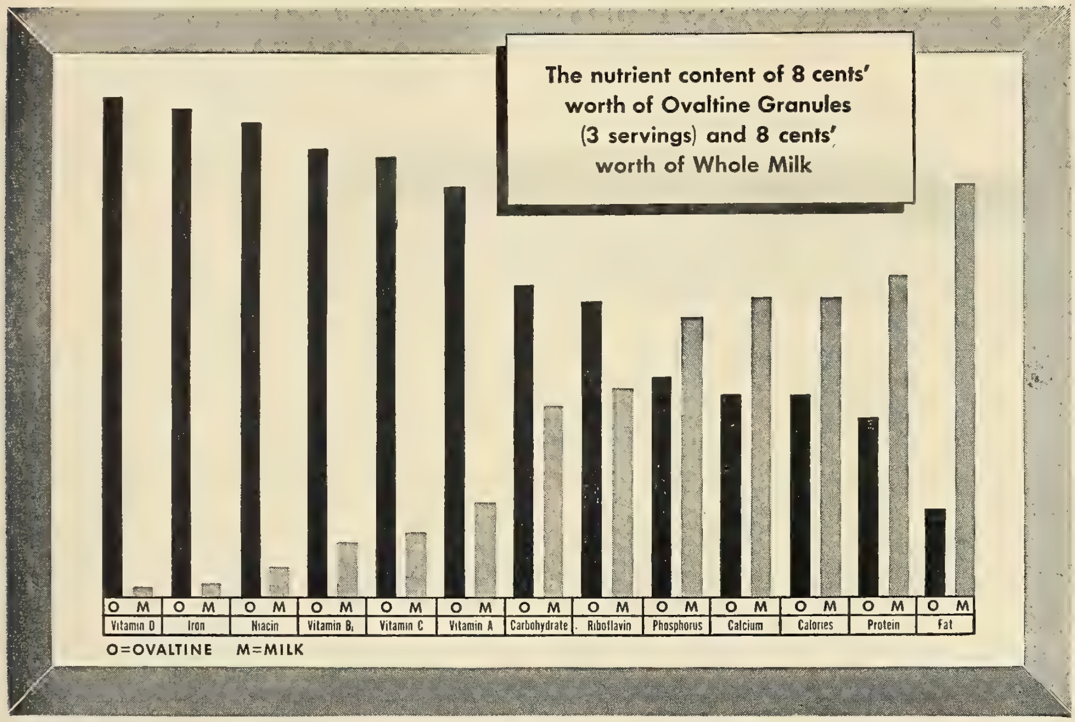

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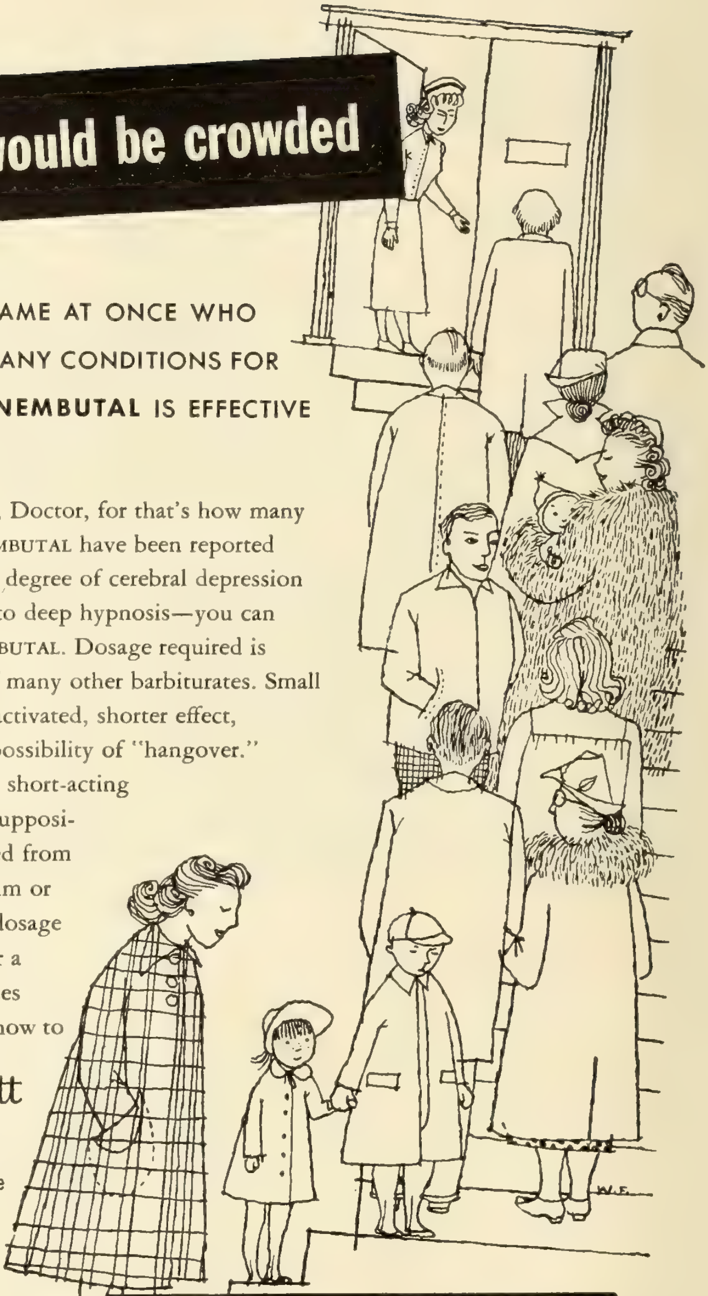

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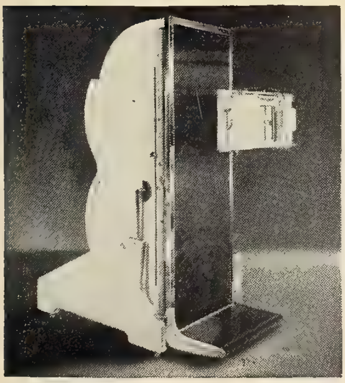

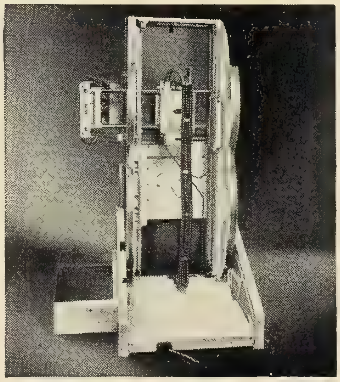

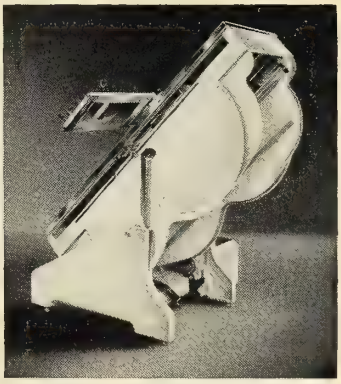

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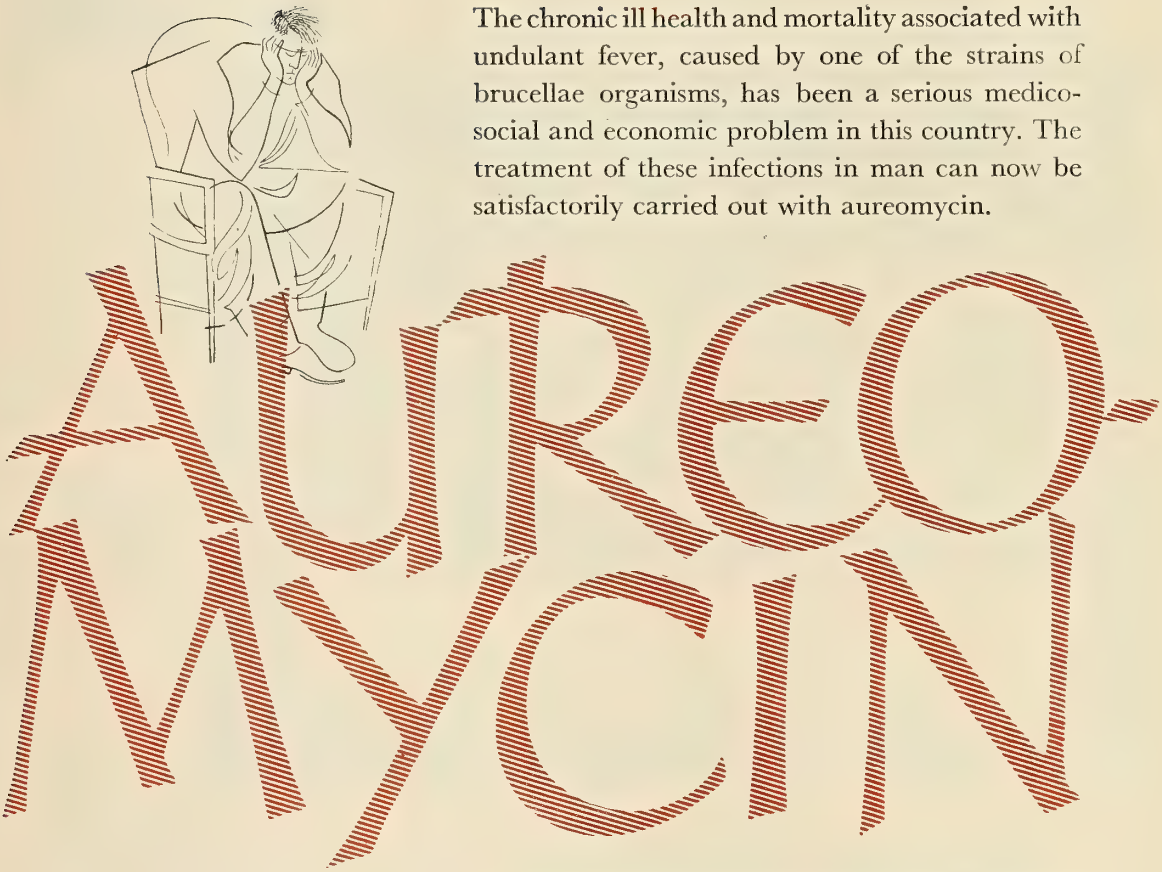

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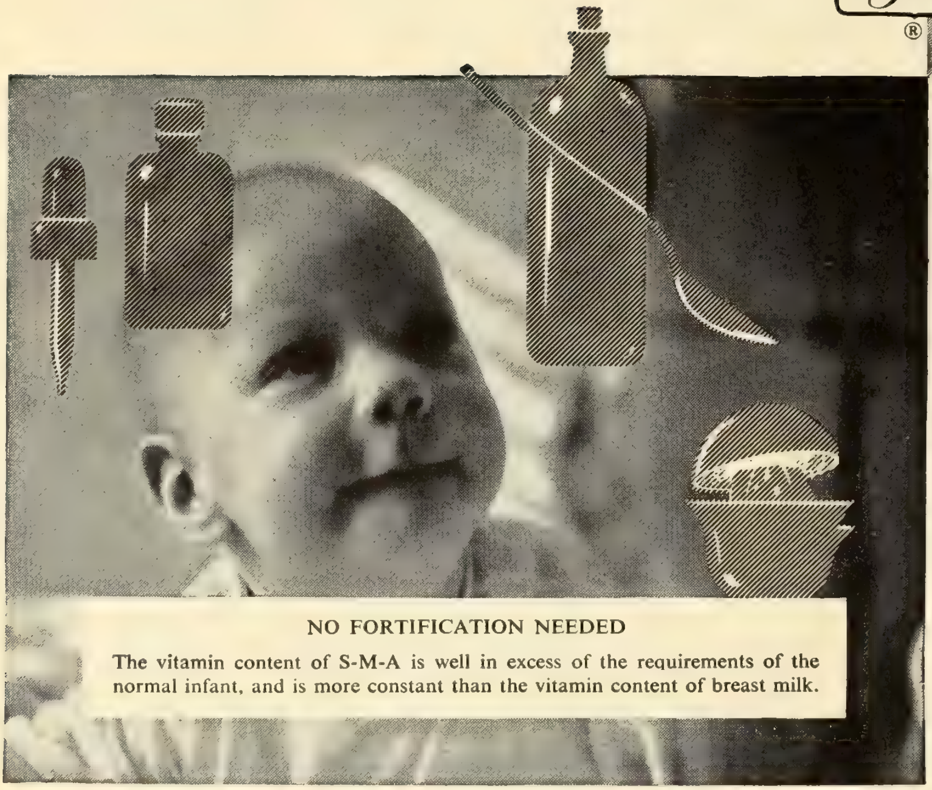

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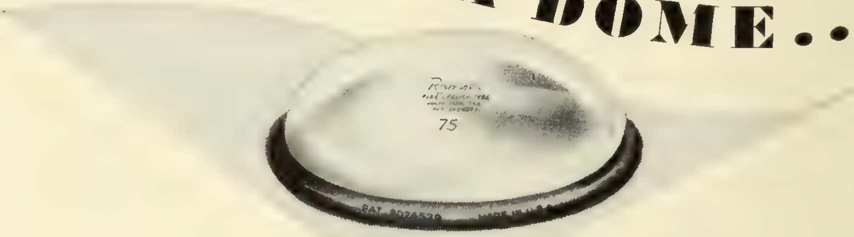

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 33 **DECEMBER, 1950** **No. 12**

HYPOPLASIA OF THORACIC AORTA CLINICALLY SIMULATING COARCTATION

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WITH the current interest in cardiac and vascular surgery, it is felt advisable to report what is believed to be an unusual abnormality in the aorta. A thorough review of the American literature fails to reveal a previously reported case similar to this. Clinically our patient presented most of the findings of coarctation, and thoracotomy proved him to have narrowing of the thoracic aorta beginning at a point just distal to the ligamentum arteriosum.

Case Report

R. L., a twenty-five-year-old, single, white man, was first seen at Ancker Hospital on January 25, 1948, after sustaining a nasal fracture. He had known that he had a "heart murmur" since the age of eighteen and had been told that he probably had coarctation of the aorta after one physician had used intravenous-medications to relieve a blood pressure of "about 190."

On April 28, 1949, he was admitted to the hospital at the request of one of us (J. F. B.) for operation, again with diagnostic findings of coarctation of the aorta. At that time he was relatively asymptomatic except for extreme palpitation and some exertional dyspnea and fatigue. He gave no history of orthopnea, cough, or ankle edema and had no urinary complaints. As a child he had been able to exercise and swim without appreciable difficulty.

His past history revealed that he had developed tuberculosis of the thoracic spine and left hip at the age of three. The spine and hip were immobilized until he was seven years of age using a Bradford frame and casts. At eighteen years of age his left hip was ankylosed. Other operations included a tonsillectomy and an appendectomy. He had the usual childhood diseases (measles, mumps and chickenpox). Several years prior to admission he had pneumonia involving the left lung.

Physical examination revealed an asthenic, intelligent, young white man in no acute distress. His temperature was 98.7° F. and his pulse 60. A blood pressure recording in the right arm was 160/110 and in the left arm 162/94; in the right and left legs 110/90. There were scars over the left hip area from previous surgery and draining sinuses. There was a dorsal kyphoscoliosis with increased anteroposterior diameter of the chest (Fig. 1). Examination of the heart revealed cardiac enlargement with the apex at the sixth left intercostal space at the anterior axillary line. The rhythm was regular. There was a long harsh systolic murmur heard best in the left second interspace, and one observer (J. F. B.) heard a diastolic murmur over the base of the heart. Femoral pulsations were diminished in quality, but present. Popliteal, posterior tibial, and dorsalis pedis pulsations were not felt. Pulsations in the upper extremities were normal. The left hip joint was ankylosed and both legs were small in calibre and less muscular than normal.

Laboratory studies showed normal urinalyses with specific gravities between 1.010 and 1.025. The hemoglobin was 14.1 grams and red blood cell count 5.65 million. The white count was 7400 with 56 per cent polymorphonuclear cells, 39 per cent lymphocytes, 4 per cent monocytes and one per cent eosinophil. The erythrocyte sedimentation rate was 5 mm. in one hour. The blood urea nitrogen was 11.2 mg. per cent.

Chest fluoroscopy showed left ventricular cardiac enlargement and rib notching (Fig. 2). The aorta was not well visualized because of the marked spinal deformity consisting of acute angulation in the upper third of the dorsal spine. Films taken in this area showed destruction of several vertebral bodies, probably dorsal four, five, six, and seven. There was a minimal amount of calcification present and it was felt that the destructive process was probably due to tuberculosis.

The electrocardiogram showed sinus bradycardia and left axis deviation interpreted as probably being within normal limits. Renal flow studies preoperatively by Dr. John LaBree were also within normal limits.

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Presented before the Minnesota Society of Internal Medicine on May 27, 1950, at Duluth, Minnesota.

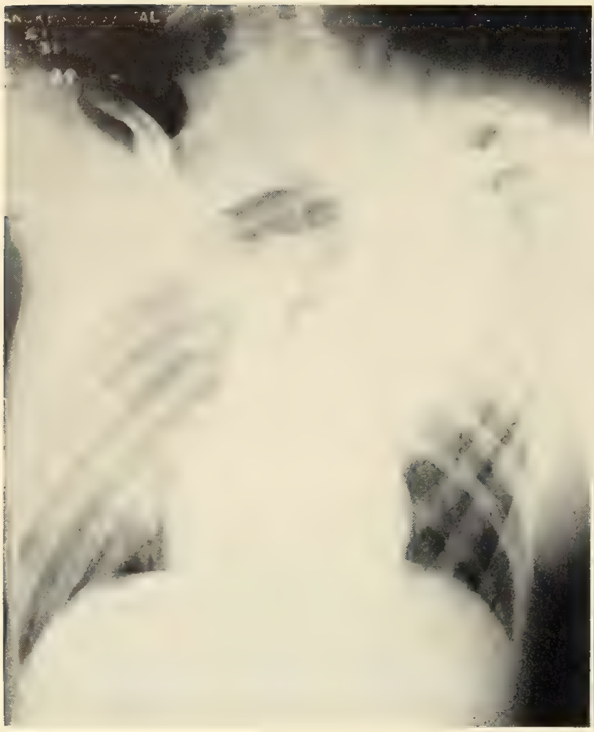

Fig. 1. Oblique x-ray chest showing the dorsal kyphoscoliosis.

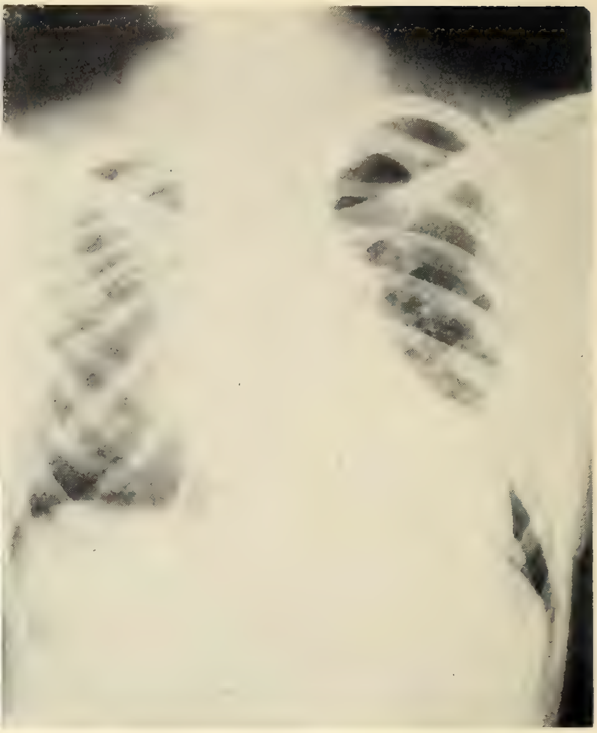

Fig. 2. Anteroposterior view of the chest showing left ventricular cardiac and rib notching.

On May 9, 1949, he was taken to the operating room but operation was postponed after the anesthesiologists were unable to introduce an endotracheal tube. Nine days later, on May 18, intubation was successful and an exploratory thoracotomy was performed under pentothal-curare-nitrous oxide anesthesia. The pleural cavity was entered through the left posterolateral aspect of the chest with excision of the sixth rib. The vessels around the scapula were markedly dilated. The left subclavian artery was found to be dilated to a diameter of 3 cm. The arch of the aorta also measured 3 cm. in diameter (circumference 9.42 cm.). After incising the mediastinal pleural covering the aorta, a narrowing was found in the aorta just distal to the ligamentum arteriosum and also to the point of most marked dorsal kyphosis. The aorta at this point measured only 1.5 cm. in diameter, and exposure of the thoracic aorta by dissection down to the diaphragm failed to reveal any change in its size. A good flow of blood was felt going through this portion of the aorta.

Because of the nature of the abnormality, further operation was deemed inadvisable. After introducing two rubber catheter drains into the pleural space, the chest wall was closed in layers with interrupted silk sutures. His postoperative recovery was uneventful.

Discussion

Hypoplasia of the aorta was described first in 1761 by Morgagni, and by 1907, according to Ikeda,[8] over 100 cases had been reported in the literature. Recently the reports have been more sporadic and all have concerned themselves with narrowness of the entire aortic system or well-localized areas (coarctation). Burke,[5] Apelt,[2] Ikeda,[8] and Werley, Waite, and Kelsey[13] give excellent descriptions of hypoplasia involving the entire aortic system.

Coarctation was first recognized, according to Abbott,[7] in dissecting room specimen by Paris in 1791. In the past two decades the literature has contained numerous reports and reviews which need not be discussed here. The surgical treatment of this condition was introduced independently by Gross and Crafoord in 1945. Bahnson, Cooley and Sloan[3] reported two cases of coarctation below the ductus arteriosus and added ten from the literature. Parker and Dry[11] reported a case of aortic stenosis between the left common carotid and left subclavian arteries. Maycock[10] and Kondo et al[9] presented cases with complete occlusion in the mid-abdominal aorta.

From the available literature, then, our case seems unusual in that it combines the clinical picture and pathological findings of both coarctation and hypoplasia. Unfortunately we do not know the calibre of the abdominal aorta, but must assume that it, too, is hypoplastic.

The incidence of hypoplasia of the aorta varies in several reports. Ikeda[8] states that out of 14,305 autopsies at the University of Minnesota there were eight cases; he also states that Von Ritook reported fifty-seven cases in 395 autopsies and Cabot reported nineteen cases in 1846 autopsies. Werley et al[13] found twenty-five cases in 4500 autopsies. Paul White[14] states that simple hypoplasia of the aorta is probably the commonest of the congenital aortic anomalies, but in high degree is relatively rare and then usually associated with other cardiovascular defects. Maude Abbott[7] found twenty-one cases of hypoplasia among the 200 cases of coarctation which she reviewed. She commented that since the ascending aorta is so commonly secondarily dilated as a result of coarctation, the original narrowing at this point (ascending and aortic arch) may be obscured in patients attaining adult life. Thus she concludes that the association of congenital hypoplasia of the arterial tract with coarctation may be more frequent than is apparent from reports.

In normal males between the ages of twenty and thirty years, the average circumference of the thoracic aorta studied at necropsy was 4.4 cm., according to Ikeda.[8] According to these figures our case, with a circumference of 4.7 (diameter 1.5 cm.) falls within normal limits. However, our measurement seems to be near the lower limits of normal and was taken on an aorta distended with blood so that the size is not well comparable with the size of the aorta found at necropsy. Furthermore, Werley, Waite and Kelsey[13] state that the normal internal circumference of the aorta at its widest point equals 5.5 cm., and they present one case of hypoplasia in which the thoracic aorta measured 1.37 cm. in internal diameter and two others in which the measurements were 1.11 in diameter. Inasmuch, then, as our measurements were taken of the outside diameter and on a living patient, we feel that for practical purposes this aorta must be considered hypoplastic.

In considering an explanation for the hypertension in the upper extremities in our case, several factors seem important. According to the laws of the dynamics of circulation[4,13] we find we have increased resistance due to the long narrowing of the aorta. Since the volume of flow is proportional to the fourth power of the diameter (Poiseuille law), there is reduced flow to the lower extremities. In compensating for this, the collateral circulation proximal to the narrowing developed. The gradual dilatation of the aorta, acting much like an aneurysm, produced a vicious cycle following the principle that in a tube of varying diameter the velocity varies inversely and the lateral pressure directly with the sectional area of the tube. Abramson[1] feels that the increased systolic blood pressure in the upper extremities is largely the result of arteriolar vasoconstriction, although the resistance to blood flow through the narrowest portion of the aorta probably plays a role. The renal blood flow studies which were within normal limits tend to eliminate the kidneys as a factor in the hypertension.

This case allows interesting speculations as to pathogenesis in view of the associated healed (?) tuberculosis of the thoracic spine and marked kyphoscoliosis. Certainly one must admit that failure of the aorta to have developed normally might well be secondary to the marked spinal deformity, particularly since the area of narrowness began immediately adjacent to the point of greatest projection of the spine into the thorax. Burke,[5] in 1902, interestingly enough, discussed the etiological relationship of aortic hypoplasia and tuberculosis. He concluded that arterial insufficiency tended to predispose to the infectious process. Here we feel that mechanical effects may have been more important. Certainly, however, we cannot deny that the coexistence of these two entities may have been purely coincidental.

Angiographic studies of this case would certainly have been of value, but unfortunately at the time he was submitted for operation, the technique of angiography at our hospital had not been perfected to the point where the risk of the procedure seemed justified.

The question of whether or not this lesion is congenital or acquired arises. In favor of this being congenital are the associated cardiac murmurs and possibly the extent of the hypoplasia. On the other hand, the fact that the narrowing began adjacent to the point of most marked dorsal kyphoscoliosis is in favor of its being acquired. We do not feel that there is sufficient evidence to answer this question completely.

Summary

1. A case of an unusual abnormality in the thoracic aorta which clinically simulated true coarctation of the aorta has been presented.

2. A brief review of the literature on coarctation and hypoplasia of the aorta is included.

(Continued on Page 1203)

TREATMENT OF AURICULAR FIBRILLATION FROM THE STANDPOINT OF THE GENERAL PRACTITIONER

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THE highest degree of auricular disturbance is called auricular fibrillation. In this condition, the number of auricular impulses is very great, 400 to 600 per minute. Total irregularity (delerium cordis) has been thoroughly evaluated by Thomas Lewis[7] and other early cardiologists. The classical theory of circus movement to explain this abnormality has been universally accepted and has only recently been challenged by Pranzmetal of Los Angeles who photographed exposed hearts of dogs using high speed colored film reproducing the heart action in slow motion.

Auricular fibrillation is the most common cardiac irregularity requiring treatment encountered in hospital records. It probably ranks third in frequency as a disturbance of rhythm, premature beats and paroxysmal auricular tachycardia ranking first and second. White and Jones[13] analyzed 3,000 patients with cardiac symptoms and signs in 1928. They found 376 of this group (12.5 per cent) with auricular fibrillation; 309 (82.2 per cent) were permanent and 67 (17.8 per cent) paroxysmal in type.

Auricular fibrillation is rare in infants and children and is most commonly found in individuals over forty years of age. It is usually associated with organic heart disease, but may occur in the absence of heart disease associated with excessive use of alcohol, tobacco, or with excitement, trauma, operations (particularly thoracic), acute infections (pneumonia) or chronic infections such as cholelithiasis. White states that the condition is fundamentally a functional disorder and is not in itself to be classified as heart disease. However, in hospitalized cases auricular fibrillation is associated with organic heart disease in a high percentage of cases. Auricular fibrillation occurs frequently in rheumatic valvular heart disease. The triad of rheumatic heart disease, mitral stenosis and auricular fibrillation is a common occurrence. Auricular fibrillation is less frequent in rheumatic heart disease with aortic valvular deformities. In rheumatic heart disease the fibrillation is generally paroxysmal and disappears spontaneously only to recur when valvular deformities are present. It is unusual in congenital, subacute bacterial and syphilitic forms of cardiac involvement and in chronic cor pulmonale, although it does occasionally appear in these conditions. In an analysis of 575 cases of auricular fibrillation by McEacheon and Baker[8] the chief etiologic relationships were: rheumatic heart disease 34.4 per cent, arteriosclerotic heart disease 31.1 per cent, hypertension 16.9 per cent, thyrotoxicosis 7.5 per cent, emphysema 5 per cent, syphilis 3 per cent, and miscellaneous 2.1 per cent.

On observation of the fibrillating heart the auricles appear dilated and inco-ordinated. Contraction is replaced by quivering of the auricular surfaces, while the ventricles beat at totally irregular intervals. There is a decrease in cardiac output per minute and diliatation of the heart irrespective of whether or not heart disease is present, and the state of compensation. Kerkhoff[5] utilizing the acetylene method of determining cardiac output found the efficiency of the heart in mitral stenosis with auricular fibrillation increased 25 per cent when regular rhythm was restored by quinidine even though prior to conversion the rate was kept at 60 to 70 beats per minute with digitalis. No one, as yet, has reported a series of cases studied by means of right heart catheterization before and after conversion.

During tachycardia there is so little blood in the ventricles when systole occurs, that some contractions fail to open the aortic valve and to expel enough blood to form a radial pulse, accounting for the pulse deficit. At the next systole there will be a greater accumulation of blood, so that the radial pulse will be barely palpable or larger, which accounts for variations in pulse volume. The pulse deficit represents expenditure of cardiac energy which is wasted.

Symptoms vary with auricular rate, the underlying functional state of the heart, and the duration of the auricular fibrillation. In the paroxysmal form, when the ventricular rate is rapid, the picture is similar to that seen in paroxysmal tachycardia except for the arrhythmia and other diagnostic signs of auricular fibrillation. In the chronic form, no symptoms may be present or, if present, they range from palpitation, fluttering,

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Read at the annual meeting of the Southern Minnesota Medical Association, Mankato, Minnesota, September 11, 1950.

skipping, pounding and anxiety, to pallor, cyanosis, breathlessness, syncope, faintness and collapse. Congestive heart failure may be coincidental with, contributed to, or entirely caused by the rapid irregular ventricular rhythm. While angina pectoris is uncommon in chronic auricular fibrillation, it may occur in the paroxysmal form with a rapid ventricular rate when the patient has a predisposing underlying chronic coronary insufficiency. The patient may show distress or fear, may complain of the tumultous action, may be irritable or may have vague pain. The symptoms are exaggerated when the patient is hypersensitive.

The clinical diagnosis is not difficult; and it is easier if the ventricular rate is quite rapid or before digitalization. On ausculation the rhythm is usually totally irregular. Attempts at discerning any regular sequence of heart beats is met with failure. The pulse is usually slower, and is irregular and of variable volume. Simultaneous auscultation of the heart and palpation of the radial pulse reveals the magnitude of the pulse deficit. The ventricular rate and pulse deficit increase with moderate exercise while the irregularity due to premature contractions is likely to disappear. The ventricular rate may be 180, but usually is 130 to 160, and occasionally is as low as 70 or 80 even without digitalis. Carotid sinus pressure retards the ventricles transiently by depressing the A-V conductivity, bringing out the irregularity at slow rates. The enhancement of A-V conductivity and the acceleration of the ventricular rate by exercise, atropine and amyl nitrate may disclose the irregularity of the beating heart. The cardinal signs of auricular fibrillation in the electrocardiogram are: (1) the absence of P waves, (2) the presence of irregular ventricular beating, except in complete A-V block, and (3) the presence of undulations (F waves) of varying amplitude, contour and spacing, whose rate usually falls between 350-600 per minute.

Sudden death from auricular fibrillation is rare except in the forms associated with coronary disease or an embolus. The formation of thrombi in the auricles, especially in the auricular appendages, is common and may result in emboli to the vascular beds especially evident in the lung, brain, extremities, mesentery, and heart. Sudden death may be caused by emboli or by a ball thrombosis in the mitral wave. When the ventricular rate is slow, patients maintain an adequate circulation for years without progressive cardiac enlargement or failure. Others carry on satisfactorily when the rate is controlled. The paroxysmal form may lead to no apparent harm in the course of years. Chronic fibrillation does not in itself afford a serious prognosis, but as a complication of heart disease, it comes on usually toward the end of the natural history of the disease.

The treatment of auricular fibrillation is not a standard procedure. Each individual needs to be evaluated clinically and a thorough understanding of the basic cardiac disease should be sought out before therapeutic measures are instituted. Since emotion and exertion tend to speed up the rate of the ventricles, they should be minimized as far as practicable.

If the ventricular rate is slow, if it accelerates only moderately on exercise, and if the patient is without symptoms, special treatment is not indicated, although the use of quinidine should be considered. If the rate is rapid, especially if the patient has heart disease, rest in bed is indicated if possible until it is retarded, and is required if there is failure.

Digitalis is by far the best drug to administer in auricular fibrillation; in fact, its reputation as a cardiac drug rests primarily on the brilliant results obtained when the condition is attended by a rapid ventricular rate and congestive heart failure. The faster the ventricular rate, the more urgent the necessity for therapy to retard the beating of the ventricles. Digitalis acts primarily to reduce the number of impulses passing to the ventricles by depressing A-V conduction, but aside from that it also relieves congestive failure. Digitalis is given either to build up the concentration of the drug in the heart (digitalization) or to maintain the concentration once established. The rate of digitalization varies with the urgency of the case. Digitalis should be given until the desired effect is obtained or mild toxic symptoms appear. The chief toxic manifestations of digitalis are anorexia, nausea, vomiting, diarrhea, yellow or colored vision, frequent premature beats, sino-auricular block and sinus standstill.

In determining the amount of digitalis to be used the goal of 60 to 80 beats per minute at the apex should be kept in mind. If the patient is in bed and digitalis has not been given in three weeks, digitalization may be undertaken rapidly by giving in twenty-four hours by mouth a total of 1.8 gm. of the powdered leaf (U.S.P. XII). In the average case, digitalis folea (U.S.P. XII) 0.2 gm., or digitoxin 0.2 mg. orally three times daily for three days is recommended. This is a rough guide and the patient should be placed on a maintenance dose earlier if the desired therapeutic effect is obtained sooner and conversely should be delayed until more digitalis has been given if the patient responds poorly to the above dosage. The amount of digitalis required is influenced by the body weight, the status of the myocardium, the rate of absorption, the speed of mobilization and excretion, and the amount of edema fluid. These factors operate to affect the levels of digitalis concentration in the myocardial tissue and the level required for therapeutic response. The lowering of the ventricular rate to 70 to 80 beats per minute and the lowering in pulse deficit are valuable indices of the therapeutic response to digitalis. Similarly the disappearance of edema, increased urinary output, weight loss and disappearance of other signs and symptoms of congestive failure should be used. Individuals who reach the full therapeutic or toxic level before four or five days usually require smaller maintenance doses (0.1 gm. of leaf, 0.1 mg. digitoxin), and those who take longer than a week usually require more digitalis as a maintenance dose. The appearance of toxic signs and symptoms calls for discontinuation of the drug. However, it should be resumed and administered cautiously following disappearance or evidence of toxicity.

In the treatment of ventricular paroxysmal tachycardia caused by digitalis excess, quinidine, papaverine, potassium or magnesium have been used to sooth the ectopic pacemaker.

In more urgent cases digitalization may be carried out more rapidly, the full digitalization dose being given in one, two or three doses. It may be given in the form of digitoxin *(Digitaline nativelle)* 1.2 mg. The entire dose or portions thereof may be given orally, intravenously or intramuscularly. Orally the medication is absorbed totally and gives a full effect in a matter of three to four hours, the effect lasts for several days and this drug does not irritate the intestinal tract in therapeutic doses. Its effect parenterally (intravenously or intramuscularly) is similar to oral administration, and the parenteral route is to be used when the oral route is not available. In giving such large doses of this or any other digitalis preparation, extreme caution should be exercised if the patient has received digitalis recently, especially if edema is present, because ventricular fibrillation can readily be caused. Edema fluid contains digitalis in digitalized patients, and when absorbed the digitalis re-enters the blood stream for distribution together with that administered. It takes two weeks or more for digitalis to be excreted.

If more rapid effects are essential, quicker acting digitalis preparations are to be used intravenously with the same care as with large doses of digitoxin to avoid overdigitalization. The purified crystalline glucoside, lanatoside C, may be used. It is faster in speed of action and rate of excretion when given intravenously than digitoxin. Its effect intravenously begins within an hour. The digitalizing dose of lanatoside C intravenously is 2 mg. It should be mentioned that strophanthin intravenously has been used for rapid digitalization; however, it is rarely being used at the present time.

Occasionally it is desirable to treat auricular fibrillation on an ambulatory basis. Dosage schedules should be calculated on total digitalization plus the total maintenance dose over a given number of days. It is advisable to carry out the digitalization over a period of several days with smaller amounts being given at the end of the schedule. Ambulatory therapy intimates loss of direct supervision, therefore, the patients should be closely instructed in regard to the toxic effect of the medication.

Paroxysmal auricular fibrillation is not an uncommon finding in a general practitioner's office. If paroxysms are infrequent or brief in an otherwise well subject, specific treatment is not required, beyond avoidance of precipitating factors. If, however, the attack has persisted for several hours, if tachycardia prevails, or if the patient is uncomfortable, reassurance, bed rest and sedation should be prescribed. Lack of response to the above treatment indicates the necessity for digitalization which should then be carried out. If the normal rhythm has not been restored by digitalization, quinidine is indicated. Recurrent fibrillation is occasionally prevented by digitalization followed by maintenance doses.

When auricular fibrillation occurs in hyperthyroidism, the ventricular rate is reduced with digitalis. Larger than the average amounts may be required for adequate slowing. Maintenance doses are continued during treatment with propylthiouracil, iodine, et cetera. After operation in most instances, a few days to many weeks, the rhythm reverts to normal spontaneously. When this occurs, digitalis is discontinued if heart failure does not require its continued use. If normal rhythm has not recurred after an adequate postoperative period the use of quinidine is considered.

Recent myocardial infarction followed by auricular fibrillation with a rapid ventricular rate is a situation calling for heroic therapy. Rapid digitalization is carried out followed by quinidine therapy. Quinidine is advisedly first preceded by digitalis in order to avoid further ventricular acceleration which quinidine may bring on as it slows auricular activity.

Quinidine is a far more effective drug in reestablishing sinus rhythm than digitalis. Wenckebach first introduced quinidine in 1914 for the treatment of paroxysmal auricular fibrillation. Most authorities agree that patients with auricular fibrillation should be digitalized and well compensated before conversion with quinidine should be attempted; however, in recent articles McMillan and Welfare[9] and Askey[1] state that in patients with congestive failure persisting after complete digitalization, rest, diuretics, and low sodium diet, administration of quinidine to abolish auricular fibrillation at times produces remarkable results.

According to recent articles the only absolute contraindication to quinidine is idiosyncrasy to the drug itself.[1,4,9] Relative contraindications are pronounced cardiac enlargement, congestive failure, heart block, subacute bacterial endocarditis and angina relieved by fibrillation.

Symptoms of toxicity include the symptoms of cinchonism such as tinnitis, vertigo, visual disturbance, headache, confusion, syncope, fever, nausea, vomiting, diarrhea, cutaneous rash and angioneurotic edema. Serious hazards include ventricular fibrillation, cardiac asystole or respiratory arrest.

At the present time most cardiologists agree that the incidence of embolic accidents with conversion has been greatly overemphasized. Vika, Marvin and White[12] stated that it seemed justifiable to conclude that embolism occurs less frequently under quinidine therapy than under ordinary treatment. In 200 cases of auricular fibrillation without quinidine therapy, these investigators observed nine instances of embolic phenomena (4.5 per cent) whereas in 484 cases of auricular fibrillation treated with quinidine emboli accured in fifteen cases (3.1 per cent).

Before attempting the restoration of normal rhythm with quinidine the patient should be placed on bed rest and adequately digitalized. Fahr[2] recommends a test dose of 3 grains be given. The following morning 3 grains are given at 8, 9, and 10 a.m. Each succeeding day 3 grains are added to the previous dose (Ex.: 6 grains, 3 grains, 3 grains, et cetera). If necessary the total dosage may be raised to 36 grains. He reports a total conversion to normal rhythm in 65 per cent of cases (over 500 cases of fibrillation and flutter).

Levine[6] recommends 0.2 gm. of quinidine to start and this is increased by 0.1 gm. with each dose. Medication is given three times a day. Up to 1.5 gm. in a single dose have been given but this is not advisable under ordinary circumstances.

Following digitalization, Katz[3] uses a schedule of 0.4 grams every two hours until the arrhythmia is broken or until five doses have been given. This may be repeated for two or three days, the dose being increased each day by 0.2 gm.

If normal rhythm is restored, a maintenance dose of 0.2 gm., one to three times daily, may be used. If normal rhythm is restored once, but fibrillation recurs while quinidine is being given, further attempts are not recommended. After normal rhythm is restored prophylactic maintenance dosage should be given for a period of weeks and then stopped, in order to determine whether the ectopic pacemaker is inactive.

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I wish to acknowledge extensive use of References 3, 6 and 13 in the preparation of this paper.

"ANTABUSE" (TETRAETHYLTHIURAM DISULFIDE) IN THE TREATMENT OF ALCOHOLISM

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TO the list of modifications of the treatment of alcoholism proposed in recent years, Jacobsen and Martinsen-Larsen of Denmark contributed clinical reports two years ago on the combined effect of alcohol and Antabuse® (tetraethylthiuram disulfide). Pharmacological and toxicological investigations and animal experiments were outlined by Hald, Jacobsen, Larsen, Asmussen, Jorgensen and others.

The purpose of this presentation is to outline preliminary considerations and to record clinical experiences with the treatment of twenty-six patients during the past year.

Preliminary Considerations

Cyanamides were shown by Koelsch in 1914 to produce toxic effects in workers handling those chemicals when they imbibed alcohol even in small amounts. The symptoms included redness of the face, feeling of giddiness, headache, heightened pulse and respiratory rates. Continuing for thirty to ninety minutes, these were terminated by fatigue and somnolence.

Another sensitizing agent, a fungus termed coprinius atramentarius, had been found to be toxic to humans only when alcohol was consumed. Accounts of non-fatal poisoning in a family are referred to by Hald, Jacobsen and Larsen.

Toxicity of tetraethylthiuram disulfide is relatively low; the drug is not soluble in water and is not excreted by the kidneys. A dose of 2 to 3 grams per kilogram of body weight has been proved fatal to dogs and rabbits. Prominent symptoms preceding death include progressive depression, ataxia, slowing of the pulse rate and respiration. Kidney degenerative processes were found to exceed those in the lungs and liver. On the other hand, the continued daily administration of 1 milligram to rats and 60 milligrams to rabbits for ten months failed to reveal impairment of growth, of body weight or of the elements of the blood. Single doses of 3 grams, or of continued dosages of 0.25 to 1 gram daily in man induced no deleterious results in most instances. Danish workers found that within twelve hours following the ingestion of 1 gram of antabuse, the intake of alcohol produced, after the elapse of five to fifteen minutes, first a feeling of heat in the face and soon thereafter observable reddening of the face, neck and chest. The pulse rate rose to 120 and higher, blood pressure declined slightly, the alveolar carbon dioxide was decreased, cardiac output was increased up to 50 per cent in the resting person, and up to 15 per cent if the subject was moderately active.

Nausea, if at all present, occurs within an hour after the intake of alcohol. Vomiting is less frequent. Dizziness and coma appear to be the result of relatively higher doses of alcohol. Blood pressure falls significantly in these instances. There is the noteworthy observation that inhalations of pure oxygen eliminate the effects upon respiration and cardiac output.

Antabuse administration combined with alcohol consumption brings on a five- to ten-fold rise of the blood acetaldehyde level above that determined when the antabuse is omitted; exact reactions concerned are unknown. A concentration of 5 to 10 milligrams per hundred cubic centimeters in the blood suffices to induce a rise in skin temperature. Coma appears when these figures rise to 100 milligrams or more. Tolerance, apparently relatively high in heavy drinkers, at first decreases gradually. In doses of an average drink, alcohol tends to remain in the blood for some sixty to ninety minutes following intake, and during this period of time antabuse continues capable of producing characteristic symptoms, which are followed by a short period of fatigue and somnolence. The saturation dose of antabuse in humans is not determined. Rabbit experiments are reported to have shown that acetaldehyde formation is augmented as the dosage of alcohol and the drug, the latter up to 0.3 gram per kilogram of body weight, are increased. Hypersensitivity to alcohol is observed to begin three to four hours after antabuse administration in a single dose and to continue for the following twenty-four hours.

Read at the annual meeting of the Southern Minnesota Medical Association, Mankato, Minnesota, September 11, 1950.

Presented at Southern Medical Association Meeting, Mankato, September 11, 1950.

"Antabuse" trade mark for brand of Antabus (tetraethylthiuram disulfide) as manufactured by Ayerst, McKenna and Harrison Limited, who furnished a supply of "Antabuse" employed in this investigation.

Clinical Experiences with Twenty-six Patients

Of our twenty-six patients, six were treated at the Minneapolis General Hospital and twenty in private hospitals. There were twenty-two males and four females. Ages ranged from the mid-twenties to the early fifties, about half in the fifth decade. Nineteen listed themselves as married, one as single, five divorced, one widowed. About one-half of this group of alcoholics gave a history of drinking for their past fifteen to twenty years. With few exceptions, all preferred whiskey and beer. Two preferred beer alone, and one reported that he confined himself to gin. Wine and rum were resorted to by several on some occasions. Other interesting factual material concerning personal history, education, vocational achievements, familial and other interpersonal relationships, hereditary accounts, range of individual abilities and other psychologic test records, behavior in conflict with the law, previous treatments, et cetera, cannot be detailed here. Essentially these data reveal no uncommon deviations.

Objective examinations by bodily systems, psychiatric interviews, special psychologic tests and the following technical examinations were made: (1) routine urine and blood, including the sedimentation rate, (2) fasting blood sugar and sugar tolerance curve, (3) CO_2 combining power, (4) urine concentration and dilution, (5) phenolsulfonphthalein, (6) electrocardiograms, (7) liver function, (8) x-ray of chest, (9) basal metabolism rate, (10) electroencephalogram, and additional procedures in some instances when indicated.

Significant visceral disease, if present, was regarded as a contraindication to antabuse therapy. Naturally, the patient to be treated was expected to feel an unwavering desire to stop drinking liquor and to plan satisfactory co-operation in the long therapeutic program for the future, of which the first two weeks or more in the hospital were to be regarded only as a relatively minor or introductory feature.

Antabuse administration is routinely as follows: On the first day one 0.5 gram tablet is given four times; three times on the second day, twice on the third day, and once in the morning of the fourth day. Three hours following the last dose, the patient takes an ounce to an ounce and a half of whiskey. The attending hospital personnel is expected to have at hand medicinal and mechanical aids to combat possible symptoms of shock. In addition to general observations, pulse, respiratory and blood pressure notations are made every five minutes for thirty to forty-five or more minutes after the ingestion of whiskey.

The following is an illustrative case report:

Case 1.—J. S., a male, aged forty-eight, married, a construction worker, gave a history of excessive periodic drinking for eighteen years. He had been under Alcoholics Anonymous guidance for some time. There was a history of a "bleeding gastric ulcer" on one occasion in January, 1949. Physical and laboratory data had been negative. He was started on antabuse regime, as outlined above, and on September 6, 1949, he was given 40 c.c. of whiskey, the fourth day. Blushing to a moderate degree appeared five minutes later, preceded by two minutes of a feeling of heat in the head and neck. Slight dyspnea started also in five minutes and perspiration was obviously increased at the same time. Headache of a moderate intensity was complained of within fifteen to forty-five minutes. His pulse rate rose from 80 to 100 after a ten-minute interval; to 125 after twenty-five minutes. Blood pressure fell from 128/86 to 110/80 after twenty-five minutes. There was a slight feeling of dizziness and precordial pain from ten to twenty-five minutes after taking the whiskey. Acetaldehyde odor was also detected during the same period. After moderate somnolence for a half-hour the patient was free of distress.

In two patients of the Minneapolis General Hospital series the state of shock was encountered. The next two reports concern these subjects.

Case 2.—J. C. G., a male, aged forty-seven, divorced, a railroad freight conductor, entered the hospital with history of drinking three bottles (fifths) of whiskey per day for the last six weeks. Food intake had been minimal during that time. Also, during this period he had been seeing "gremlins"; he seemed to realize that these visions were not real. Except for an appendectomy and herniorrhaphy his history had been negative. On admission, his sensorium was found to be clear, he was oriented and co-operative, but he was noted to be engaged in kicking the gremlins down the drain! On September 9 he was given 2 grams of antabuse at 8:00 a.m.; on the 10th, 1.5 grams; on the 11th, 1 gram; on the 12th, 0.5 gram at 8:00 a.m.; on the 14th, 0.5 gram at 10:30 a.m. At 2:25 p.m. on the 14th 1 ounce of whiskey was given. In ten minutes a slight increase in pulse rate and flush of face began to appear. This subsided without other phenomena. The next morning he was given 1.5 grams of antabuse and the following four days another 1.5 grams of antabuse, this at variance from the subsequently established routine. At 10:45 a.m. on the 19th, 40 c.c. of whiskey were given. At 11:10 a.m. his face appeared flushed; blood pressure, normally 118/80, fell to 70/50 in thirty minutes, and the pulse rate rose to 132 in fifteen minutes. The patient became unconscious. Thereupon coramine and caffeine sodium benzoate were injected intravenously and oxygen was administered under pressure. By 12:15 p.m. the patient began to respond, he appeared tremulous, his face was still flushed. He refused the food tray at 12:30 p.m. By 2:00 p.m. his condition appeared to be improved. At 2:30 the patient drank 200 c.c. of milk. By 3:00 p.m. he walked out in the dayroom but still seemed shaky. The next morning he awakened still complaining of some nausea and there was some emesis. At noon time he ate well and felt well until time of discharge.

The third case report indicates, furthermore, what may be expected when sugar metabolism is impaired. In the presence of such an abnormality, we would not again allow antabuse administration.

Case 3.—R. P., a male, aged thirty-one, was confined at the General Hospital from July 1-6, 1949. He was admitted in a stuporous condition, tremulous, with a history of drinking one quart of whiskey with "all the beer I can hold for the last three months." He had not eaten for the past week. He became more and more incoherent and had hallucinations of bugs crawling on the ceiling and walls. Physical examination revealed a tachycardia, sonorous type of breathing, liver enlarged 2 centimeters below the right costal margin in the medial costal line. He was re-admitted seven days following his discharge, which made the fifth admission because of delirium tremens. At this time the patient agreed to take antabuse treatment. An extensive physical check-up was performed and numerous tests were made with the following results: An electroencephalogram showed low voltage and fast waves; conclusion, borderline electroencephalogram. The basal metabolism rate was minus 20 per cent. An electrocardiogram was within normal limits. The fasting blood sugar was 75 mg. per cent. The glucose tolerance test was performed on two occasions, both showing gross abnormalities. On the first occasion the blood sugar level was 110, after one-half hour 300, after one hour 430, after two hours 150, and after three hours 40. Kidney dilution and concentration test yielded specific gravities varying from 1.001 to 1.030. The PSP test indicated a total of 70 per cent. The blood albumin was 4.09, globulin 2.21. Bromosulfalin test of liver function: "No dye retained." The patient was given 200 mg. of vitamin B_1 and 40 units of insulin on admission because of extreme restlessness, gross tremor and visual hallucinations. At first being quiet, he suddenly jumped out of bed and, then returning to bed, developed a generalized spontaneous convulsion. Following this he was more quiet and expressed no hallucinations. The antabuse treatment was started on July 27 with the usual decreasing doses of antabuse, starting with 2 grams. On the fourth day he was given 40 c.c. of whiskey. He developed mild dyspnea and complained of suffocating. After approximately one-half hour of oxygen, caffeine and insulin had to be administered. The patient developed a very marked fear and anxiety. His pulse became imperceptible and the skin was an ashen gray. The patient stated that he felt as if "the DT's were coming." Oxygen under pressure was administered for twenty minutes and gave good relief. This was repeated twice. The blood sugar then was 150 mg. per cent and the urine was negative for sugar and acetone. Following this occurrence, the patient was put on a cautious daily antabuse dosage of 0.25 gram and was discharged on this dose after a second trial of whiskey, which caused only mild reactions. Though the patient was quite impressed by the reaction of whiskey, he returned to drinking soon after his discharge. He failed to accept follow-up outpatient management.

The following case is reported to illustrate a marked influence on the blood pressure.

Case 4.—B. M., aged thirty-six, a farmer's wife, had drunk to excess periodically since the time she was married to her first husband, from whom she obtained a divorce five years previously. All preliminary clinical and laboratory investigations proved negative, except that her red blood cell count was 3,600,000 and hemoglobin 76 per cent. Besides drinking excessively four months prior to admission to Glenwood Hills Hospital she had taken twelve capsules of 1.5 grains of nembutal daily. A thyroidectomy had been performed in 1946. She was given whiskey at 10:00 a.m. on the fourth day of routine antabuse administration. Her normal blood pressure of 116/72 changed as follows: 10:20, 116/70; 10:30, 102/30; 10:35, 98/28; 10:40, 70/28; 10:45, 84/22; 11:00, 80/30; 11:05, 74/40; 11:30, 78/30; 12:15, 72/42; 12:45, 90/34; 6:00, 120/79. During the first four hours she complained of headache. Two days later whiskey was again administered. One and three-quarters hours later the blood pressure reading was 68/34; the pulse and also breathing continued to be strong. Again a slight headache was complained of for a period of several hours.

Case 5.—M. S., a widow, aged fifty-one, had been a heavy lone drinker for seven years who was started on the antabuse regime three weeks following recovery from her last debauch. No physical nor psychic stigmata were noted until the third day of antabuse administration. Then first signs of memory defect were noted. Antabuse was then discontinued. During the following two weeks it appeared that memory weakness and some degree of reduction in general interests and activity were changing for the better. Antabuse was again prescribed in the amount of 0.5 gram each day. In four or five days there again appeared more signs of psychic deterioration. In the course of the following month without antabuse there has been no change. No signs of peripheral neuritis have been established.

This case is presented because of the suggestion that antabuse might be a factor in hastening central nervous system degeneration. Satisfactory proof that this may be so is lacking. However, the mere suggestion is viewed worthy of future attention.

Results of Treatment

At the time of this writing, the twenty-six patients can be characterized as follows: (1) eleven, no drinking; (2) eight, significant improvement but return to one or more brief bouts of drinking; (3) three, slight improvement; (4) four, no improvement. If we limit our review to the twenty more promising private practice group, we can say that 40 per cent have abstained from drinking and another 40 per cent have done well most of the time. These 80 per cent have lived useful lives socially and economically. Naturally, as more time elapses these figures may change to some degree—probably a reduction of the number in the first group and a corresponding rise in the second, now 40 per cent of the total series. In the small General Hospital group treatment results ended in failure in two-thirds of the six patients, whereas one-third are significantly improved. In the instances when there was a return to drinking, the patients who maintained much sobriety, we can say, alone or more often with the help of the spouse or other relative succeeded in terminating their fling in short order. Patients in this group, as indeed all those taking antabuse, require continued psychotherapeutic care for many, many months.

Antabuse, in the last analysis then does not remove the personality problem from the alcoholic who still must deal with his restlessness and tense inner feelings, particularly at intervals. The deteriorated alcoholic is not a favorable subject for antabuse treatment; the patient with visceral disorder must be rejected lest likelihood of fatal terminations face the therapist. Furthermore, no patient should be accepted for treatment unless he has a convincing willingness and determination to prepare for an ever sober life. With the drug taken in 0.5 gram doses once per day in tablet form, the patient is given an extra handle, so to speak, with which to combat safely the inevitable wavering at some time or another in his future. The therapist can derive deep pleasure when, as happens occasionally, a patient comes to report frankly and proudly that he, though taking his medicine regularly, did want to just try a swig and adds, "Oh, Doc, it didn't taste right, I just did not want any more of it—I guess I will make it."

Summary

Historial notes and experimental work described in the literature, as well as reports on early clinical experiences by Danish physicians concerning tetraethylthiuram disulfide in the treatment of alcoholism, are reviewed. Therapeutic procedures with twenty-six patients are described. Results reported show a significantly higher improvement rate in the treatment of patients in private practice than in those cared for in a public hospital service. The greater incidence of physical and mental deterioration in the latter group served to limit the extent of antabuse treatment. The dangers encountered are described in illustrative case reports; these are reduced effectively by rejection of patients with physical and psychic defects. There were no fatal terminations in this series. The importance of adjunct psychotherapy is stressed.

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EMERGENCIES IN THE NEWBORN PERIOD

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A DISCUSSION of all of the emergencies which might occur during the newborn period is beyond the scope of this paper. The more common problems will be covered briefly. The discussion will be primarily related to the presenting symptom, differential diagnosis, and treatment.

Cyanosis and Abnormal Respiration

Cyanosis is probably the most frequent alarming symptom prompting the nurse in charge to call the physician. The cyanosis is usually associated with some abnormality of respirations. In Table I are listed the conditions one must consider in the differential diagnosis when called to see a newly born cyanotic infant who may or may not have abnormal respirations or who may present abnormal respirations as the primary symptom.

Many newborns may evidence a venostatic type of cyanosis of the face and distal parts of the extremities during the first hours after birth. No treatment is required and clearing is spontaneous.

During the first three days after birth most infants have episodes of vomiting and retching. While retching, the infant may become moderately cyanotic as any of us would do under similar circumstances. There may even be transient convulsive twitchings. These are similar to those seen in an older child in association with a paroxysm of crying following an injury. No treatment is indicated except the turning of the baby face down to avoid aspiration of the vomitus. One is tempted to aspirate the nasopharynx vigorously, but this only stimulates the gag reflex more and accomplishes little. Can you imagine how it would feel to have a large syringe vigorously poked about your throat when you are vomiting?

Before proceeding in the differential diagnosis, one should, as a general rule, administer oxygen continuously to all infants evidencing cyanosis. One may then make every effort to determine the cause of the difficulty. Oxygen may be provided by any one of many methods, ranging from the tube held close to the infant's face to the very elaborate oxygen chambers. We have found a homemade boxlike hood with clear plastic sides to work very well.

TABLE I. CYANOSIS AND ABNORMAL RESPIRATIONS IN THE NEWBORN

A. "Normal" cyanosis of face and extremities
B. "Cyanotic spell" associated with retching
C. Oversedation from anesthesia of delivery
D. Inadequate respirations due to:
  1. Obstruction to airway
    a. Nasal
    b. Nasopharyngeal: tongue, cyst
    c. Laryngeal: lesions of false and true cords, congenital laryngeal stridor
    d. Large bronchi: web, plug
    e. Vascular ring
    f. Tetany
    g. Tracheo-esophageal fistula
  2. Lesions diminishing vital capacity
    a. Atelectasis
    b. Pneumothorax
    c. Pneumomediastinum
    d. Diaphragmatic hernia
    e. Congenital anomalies of lung
    f. Cysts: lung, mediastinum
  3. Neuromuscular disturbance
    a. Cerebral hemorrhage
    b. Massive adrenal hemorrhage
    c. Amytonia congenita
    d. Hematomyelocele
E. Congenital heart disease
  1. Abnormal shunt
  2. Heart block
  3. Paroxysmal tachycardia
  4. Anomalies of coronary arteries
F. Poisoning
  1. Aniline dyes
  2. Nitrites
G. Unexplained: failure to establish adequate respirations

Slow and shallow respirations may occur in the infant if heavy sedation of the mother has been necessary in a complicated delivery. Resuscitation may have been difficult. Oxygen and stimulants such as caffeine sodiobenzoate may be given. The infant should be in a heated crib or incubator.

Cyanosis as a result of inadequate respirations secondary to obstruction of the airway is usually accompanied by suprasternal and infracostal retractions and by inspiratory stridor of some degree. The most frequent cause of this type of respiratory difficulty in the newborn is obstruction of the nares. It is not at all uncommon to see an infant, especially a premature infant, with cyanosis and marked retractions completely relieved by the simple removal of mucous plugs deep in the nares. This cause of respiratory obstruction, though the most common, is very frequently overlooked.

Lesions of the tongue such as idiopathic macroglossia, micrognathia or a cyst of the cecal foramen of the tongue or epiglottis may produce marked obstructive symptoms. Supraglottal obstruction is usually characterized by a coarse in-

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From the Section on Pediatrics, Mayo Clinic, Rochester, Minnesota. Read at the annual meeting of the Southern Minnesota Medical Association, Mankato, Minnesota, September 11, 1950.

spiratory stridor with a clear cry, and often a diminution or absence of the stridor when the infant is held face down or the tongue and mandible are thrust forward. Lateral roentgenograms of the soft tissue of the cervical region may demonstrate the lesion. Definite diagnosis can usually be made by direct laryngoscopy. Tracheotomy may be necessary as an emergency measure and removal or correction of the obstruction deferred. If one is not prepared to do a tracheotomy, an intratracheal catheter or a small Mosher cannula may be passed until tracheotomy can be done. Oxygen should be given continuously.

Lesions of the true or false vocal cords will produce marked obstructive symptoms and are characterized by a very hoarse cry or aphonia, and by lack of change in the stridor when the position of the infant is altered.

Obstruction of the main bronchi may be due to a thick plug of mucus, or to a congenital web. Physical examination will usually suggest this type of obstruction and a roentgenogram of the chest will substantiate the diagnosis. Primary lobular atelectasis of a degree great enough to cause marked respiratory embarrassment is uncommon. Aspiration of the mucous plug or dilation of the web is usually accomplished by a single bronchoscopic examination.

A vascular ring, tetany or tracheo-esophageal fistula may produce abnormal respirations. Early diagnosis of tracheo-esophageal fistula has become especially desirable since corrective surgical measures have been developed for this anomaly. The diagnosis is usually not made until the infant is offered a feeding, and vomiting follows. There are three points that should make one suspicious of this anomaly even before the infant is offered his first feeding. First, there is usually a rather noisy gurgling type of respiration. Second, the vomiting is not the usual spitting up and retching associated with the expulsion of swallowed air but is a rather continuous "spilling out." Third, the vomitus is clear mucus in contrast to the usual vomitus stained dark with swallowed amniotic fluid, blood and bile. If one is at all suspicious of an esophageal atresia, he may simply attempt to pass a small gavage tube, usually a 10 F. catheter. If obstruction is encountered, then the infant should be examined fluoroscopically and a small amount of radiopaque material instilled through the catheter. Once the diagnosis has been established, an operation should be done as soon as possible, and under no circumstances should anything be offered by mouth. Aspiration pneumonia is the complicating factor in these infants, and every effort should be made to avoid it.

Lesions diminishing the vital capacity may be the cause of cyanosis and abnormal respirations. When infants are examined routinely, it is not unusual to detect a lobar atelectasis which is proved by roentgenogram. There may be very little in the way of respiratory difficulty. Ordinarily these conditions clear up spontaneously in a few days, and bronchoscopic aspiration is rarely indicated unless there is definite respiratory embarrassment. Another type of atelectasis is the diffuse patchy type which may or may not be shown roentgenographically. The only physical finding may be a generally decreased exchange of air accompanied by cyanosis and labored respirations. Bronchoscopic aspiration is of little value in this instance as the obstruction is diffuse and in the smaller bronchioles. Oxygen, feedings by gavage to conserve the infant's energy, and as little manipulation as possible are indicated. Carbon dioxide and oxygen inhalations may be given at intervals primarily to decrease the viscosity of the intrabronchial mucus. They are of questionable value. My colleagues and I have used a saturated solution of potassium iodide at the rate of 3 to 4 drops every three hours for six doses to attempt the liquefaction of the mucus. It is extremely difficult to say whether this has been of real value or not.

Spontaneous pneumothorax may decrease the vital capacity to the extent of respiratory embarrassment and even death. We recently encountered such a case in which immediate withdrawal of air, even before roentgenograms were taken, was a lifesaving procedure. Spontaneous pneumothorax is discovered frequently, as is atelectasis, when physical examinations of the newborn are done routinely. It is only the very rare one that requires aspiration of air. The usual physical findings of hyperresonance, diminution of breath tones and possible displacement of the heart are present. Roentgenograms show the pneumothorax.

Pneumomediastinum may present a difficult diagnostic problem. A fullness of the anterior part of the chest, hyperresonance over the mediastinum, and distant muffled heart tones with fairly marked respiratory distress will suggest the diagnosis. A roentgenogram of the chest in the lateral position will show the air in the anterior mediastinal space. Needle aspiration of the trapped air will give relief.

Diaphragmatic hernia, cysts of the mediastinum and cysts of the lung may diminish the vital capacity enough to cause respiratory embarrassment. The diagnosis is usually made by roentgenogram, and, if indicated, a small amount of barium may be given to discern the location of the stomach. The treatment is usually surgical.

Cyanosis with suppression of respirations and no evident obstructive lesions may be due to intracranial hemorrhage or collapse secondary to a massive adrenal hemorrhage. Our general policy in both diagnostic and therapeutic procedures when intracranial bleeding is suspected is to be guided by the patient's general condition and whether benefit may reasonably be expected from the procedure undertaken. Treatment and diagnosis of intracranial bleeding will be discussed further in relation to the presenting symptom of convulsions.

Congenital heart disease may be the cause of cyanosis. There is usually no respiratory distress associated. A murmur may or may not be present. The cardiac silhouette in the roentgenogram may be abnormal, and the electrocardiogram may be of some assistance. If the cyanotic infant is fairly vigorous, presents no neurologic symptoms and evidences no respiratory distress, one will usually think of a congenital abnormality of the heart. Paroxysmal tachycardia, with a rate of more than 200, and possible hepatomegaly should not be overlooked. A heart rate of less than 60 should suggest heart block, and this will be confirmed by an electrocardiogram. Digitalization may be indicated in the treatment of the paroxysmal tachycardia; there is usually nothing specific to do for the infant with heart block. We have recently observed an infant with complete auriculoventricular dissociation. The heart rate has consistently been between 40 and 50 beats per minute. The infant is now approximately six months old and doing well. Anomalies of the coronary arteries may be the cause of sudden unexplained death in the newborn period.

Poisoning with the aniline dyes occasionally used by the laundry in marking diapers and shirts is mentioned as a rare cause of cyanosis. We in Minnesota are particularly aware of the methemoglobinemia due to an excessive amount of nitrites in the water, although this will rarely be seen during the newborn period.

TABLE II. CONVULSIONS IN THE NEWBORN PERIOD

A. Occasional convulsive twitchings associated with retching and gagging
B. Cerebral edema
C. Intracranial hemorrhage
D. Meningitis
E. Tetany
F. Kernicterus
G. Massive adrenal hemorrhage
H. Toxoplasmosis
I. Unexplained

The last group listed is termed "unexplained." Failure to establish adequate respirations seems at present to state the fact without necessitating a primary diagnosis such as atelectasis. The role of the so-called hyaline membrane as a factor in the failure to establish adequate respirations is certainly open to question. If it is found in as many as 50 per cent of prematures who fail to survive, why isn't it found in the other 50 per cent? How often was it present in that group who survive? Atelectasis is a frequent diagnosis made both clinically and at postmortem examination in premature infants who fail to survive. Atelectasis by definition means imperfect expansion, so this diagnosis is usually correct just as heart failure would be correct in this or any other death. What is the cause of the imperfect expansion? Immaturity does not seem to be a satisfactory explanation in all cases. The problem of the establishment of adequate respiration is the one great primary problem in the care of the premature infant. Feeding, protection from infection and general nursing care are obviously of secondary importance to adequate respirations.

Convulsions

Convulsions occurring during the newborn period usually require emergency attention just as they do at any age period. The causes of convulsions at this age are listed in Table II in descending order of frequency of occurrence.

The "blue spells" discussed previously as occurring during the first few days and associated with gagging and retching are occasionally accompanied by transitory convulsive twitchings of the extremities and facial muscles. No treatment is required and there are no sequellae.

How may one proceed to make a differential diagnosis and then offer treatment when called to see a newborn infant having convulsions? A general evaluation of the infant's condition may give some clues. If it has gray cyanosis, has the appearance of deep shock and is generally flaccid, the lesion is probably a massive intracranial or adrenal hemorrhage. What is the infant's position? An infant with head retracted, arms and legs extended and a staring expression is suggestive of an intracranial lesion. A high-pitched cry much like a short scream and the adder-like protrusion of the tongue are both associated with cortical irritation. Are the convulsions localized to one extremity or one side? Persistent unilateral convulsions suggest the possibility of a subdural hemorrhage. Is there generalized hyperirritability, muscular twitching or carpopedal spasm? These may suggest tetany.

The general physical examination may yield little in the way of positive information. The fontanelle may be bulging and the sutures separated. This finding is rarely present. If opthalmoscopic examination is done by an experienced person, the knowledge of absence of retinal hemorrhages may be of more diagnostic value than their presence. Retinal and subconjunctival hemorrhages are seen in 20 to 30 per cent of all newborn infants. Retinal hemorrhage is often one of the findings in subdural hematoma, so the absence of retinal hemorrhage might aid one in ruling out the presence of a subdural hematoma.

Nuchal rigidity is not a dependable sign in the newborn. The pulmonary exchange may be adequate but shallow and irregular, and slow respirations may be due to intracranial bleeding. The heart tones may be weak and the rate rapid. Abdominal examination usually does not disclose any abnormality but may reveal large masses which might be polycystic kidneys, with secondary uremia and convulsions.

Examination of the extremities for spasticity or flaccidity may be of some help. If there are positive findings, spasticity is usually the more frequent. Evaluation of the deep reflexes may be of some aid, but in the newborn period they are so variable that they often are misleading.

If there is any suggestion that the disease is tetany, one should not hesitate to immediately give calcium gluconate intravenously. If the convulsions are due to hypocalcemia, there will be a rapid response. One does not ordinarily treat a condition blindly but in this case such action seems justifiable. It does not seem wise to wait for the laboratory report on the blood calcium before giving calcium when there is apparently little risk involved in giving the calcium slowly in the absence of hypocalcemia. Our practice has been, when possible, to withdraw blood for determination of the concentration of calcium and then give 4 to 5 c.c. of a 10 per cent solution of calcium gluconate while the needle is in place.

The next decision to make is in regard to lumbar, cisternal, subdural or ventricular puncture. As always, one must ask himself, will this benefit the patient? It does not seem wise to attempt these procedures for the sake of diagnosis only, unless it will be of aid in guiding subsequent therapy. There are some who are quite conservative and feel that lumbar puncture should be done rarely and others who feel that repeated lumbar punctures should be done in cases of intracranial hemorrhage. I personally prefer the more conservative régime and do lumbar punctures as diagnostic procedures or rarely to relieve intracranial pressure when indicated. If difficulty is encountered in doing a lumbar puncture and the urgency of the situation warrants, cisternal puncture may be done. If there are localizing neurologic findings or other symptoms suggestive of subdural bleeding, subdural puncture may easily be done in the newborn. Ventricular puncture may be indicated.

I should like again to emphasize that the positive diagnosis of intracranial hemorrhage in the newborn is not a simple diagnosis to make. The condition is found frequently at postmortem examination when there was no suggestion clinically. The presumptive diagnosis is often made clinically and not substantiated at postmortem examination. This causes one to be extremely cautious in making a positive diagnosis of intracranial bleeding during the newborn period and especially hesitant to attribute subsequent neurologic abnormalities, such as a cerebrospastic palsy, to intracranial bleeding during the newborn period without definite evidence.

Convulsions may be the only symptom suggestive of meningitis at this age. Neurologic symptoms associated with intracranial bleeding are usually manifest within the first day or two of life. Convulsions occurring after this period may more frequently suggest an infectious process. Fever and leukocytosis may or may not be present. A definite diagnosis can usually be made only by examination of the spinal fluid.

Massive adrenal hemorrhage may present a clinical picture similar to that of massive intracranial hemorrhage. Hyperthermia and deep shock are the usual manifestations, and yet recently we have seen an infant with convulsions

(Continued on Page 1214)

THE RANA PIPIENS FROG TEST FOR PREGNANCY

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IN the practice of obstetrics and gynecology, a rapid, simple, accurate office test for pregnancy is extremely desirable. Such criteria will apparently be met by the new *Rana pipiens* frog test, first introduced only two years ago by Wiltberger and Miller[20] and Robbins and Parker.[16,17] During the past six months, I have performed in my office eighty-seven pregnancy tests according to the technique of Cutler,[4] in an attempt to evaluate the accuracy of this test, as well as to aid in clinical diagnosis and treatment. My results have substantiated those of previous writers. As a clinician, I have found it extremely satisfactory, and, compared to the Friedman test, far more rapid, requiring only two to four hours, as compared to forty-eight. It is less expensive and equally reliable, provided its limitations are well recognized and strict adherence to certain technique standards noted. These I will outline briefly, attempting to explain the reasons why certain modifications of the test are of such importance in maintaining a high degree of accuracy.

The principle of the *Rana pipiens* frog test is based upon the Mainini reaction, which was first described by Galli Mainini in 1947.[9] This reaction is the release of sperm in the urine of South American male toads following the injections of gonadotrophic hormones. Injection of pregnancy urine into the male North American frog, *Rana pipiens,* produces the same reaction, provided the level of chorionic gonadotropin is sufficient.

Technique

Adult male frogs are shipped by air from Wisconsin at a reasonable cost. The animals are maintained in a covered enameled pan in an electric refrigerator maintained at a temperature of 10 degrees Centigrade. By this means, the frogs are kept in a state of hibernation and require no food or attention. The bottom of the pan is covered with fresh water, which is changed daily. During the spawning season in the spring and early summer, a spontaneous mortality was rather frequent; but prior to and since that season, the animals have remained in the refrigerator in a healthy state for as long as four weeks at a time. When the urine arrives at the laboratory, the animal is removed from the refrigerator and placed in a beaker to "thaw out" for thirty minutes prior to injection. The Scott kaolin adsorption method[4] of concentration of urine is used. This technique of urine concentration is a relatively simple procedure which can be performed by any qualified laboratory technician. No elaborate equipment is required, and it does not consume over thirty minutes. Sex of the frog should be carefully noted. The male is distinguished by large pigmented thumbs, inflated air sacs and croaking (Fig. 1). One c.c. of the final product is injected into the dorsal lymph sac of the frog (Fig. 2). The animal is then replaced in the beaker. After thirty minutes, the frog's urine is obtained upon a slide, and a drop examined for sperm (Fig. 3). A positive response usually appears within thirty to forty minutes after injection, never later than three hours. There are usually large numbers of sperm actively motile and easily recognized under low or high dry magnification. The sperm of *Rana pipiens* are considerably larger than human sperm. Their heads are cylindrical or cigar-shaped. Absence of sperm for three hours constitutes a negative test. Animals showing negative responses may be reused after three to four days, but should be promptly returned to the refrigerator in the interim. Animals showing positive responses are destroyed.

Discussion

Chorionic gonadotropin appears in the urine of pregnant women a few days following implantation of the ovum between the twenty-second to the twenty-fifth cycle days. By cycle days, we refer to the number of days following the last menstrual period. By the thirty-second cycle day, chorionic gonadotropin has risen to 200 to 500 rat units per liter. It is at this point that hormonal pregnancy tests may become positive. The earliest positive frog test reported occurred on the thirty-fourth cycle day. Our earliest positive reaction was noted on the thirty-fifth cycle day. Chorionic gonadotropin excretion rapidly rises thereafter to reach a peak between the fifty-second to the sixty-fifth day of 133,000 to 400,000 rat units per liter. After the sixty-seventh day, the excretion of

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Read at the annual meeting of the Southern Minnesota Medical Convention, Mankato, Minnesota, September 11, 1950.

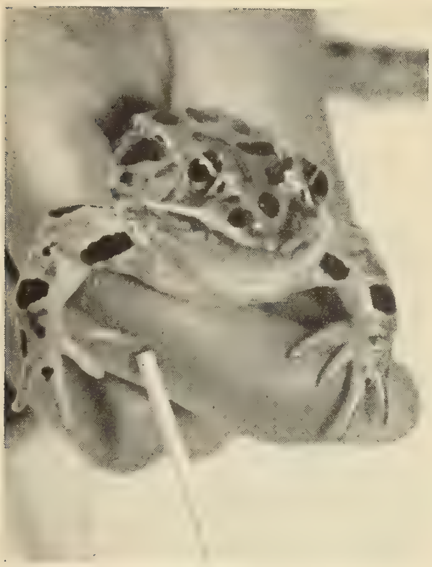

Fig. 1. Male frog is distinguished by large pigmented thumbs and air sac.

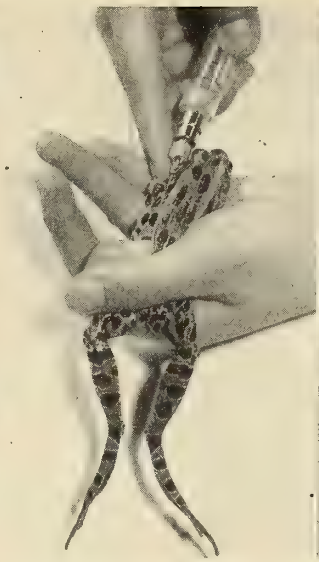

Fig. 2. One c.c. hormonal concentrate is injected into dorsal lymph sac of frog. Injection should be made just beneath the skin. Care should be taken not to puncture the lung.

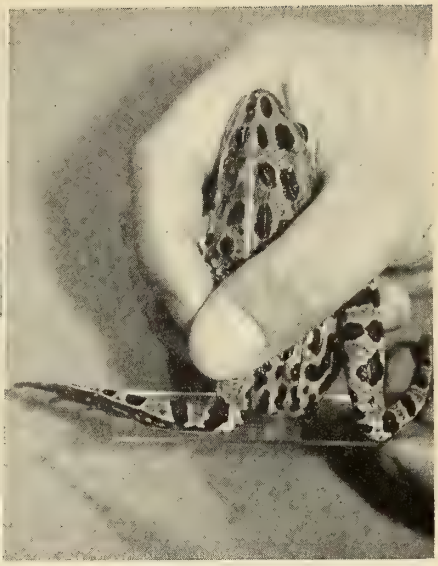

Fig. 3. Frog's urine is obtained upon a slide by flexion of legs.

chorionic gonadotropin drops sharply, reaching low levels around the sixth month, rising slowly again towards the end of pregnancy. Inasmuch as the positivity of this test is dependent upon there being a certain amount of chorionic gonadotropin in the injected urine, probably around 10 rat units, a positive response cannot be obtained with certainty before the fourth week of pregnancy (forty-second cycle day). Therefore no negative test should be accepted before the forty-second cycle day. However, a positive response is dependable at any time of gestation, inasmuch as we know of no condition under which false positives occur. Physiologically in the frog it is the luteinizing hormone secreted by the anterior pituitary gland which produces the release of sperm. Follicle stimulating hormone does not have this effect. The fact that follicle stimulating hormone does not release the sperm gives the frog test a definite advantage over the Friedman test, inasmuch as false positive reactions are eliminated in testing menopausal urines. The Friedman test does not have this advantage. False positive Friedman tests are frequently noted in the menopause, due to the large amount of follicle stimulating hormone in menopausal urine which produces follicle formation in the rabbit.

Another big advantage of the male frog pregnancy test is the rapidity with which the response becomes negative after the separation of the chorionic villi when abortion becomes inevitable. This fact was pointed out by Wiltberger and Miller, who state that the male frog test becomes negative ten to twelve hours after the termination of pregnancy. In four threatened abortion cases, we noted a change in response from positive to negative even *before* the abortion was completed. With the Friedman test, a positive reaction may persist seven to ten days after pregnancy is terminated.

Results

Mainini utilized his reaction in the detection of pregnancy by injecting 10 c.c. of whole urine into South American toads and examining their cloacal specimens for sperm. In over 2,000 tests, he reported no false positives and an accuracy of 99.01 per cent through the fifth month of pregnancy. Shortly after Mainini's report, two articles appeared in this country by Wiltberger and Miller[20] and Robbins and Parker.[16,17] These workers substituted the North American frog, *Rana pipiens,* with equally good results. The North American toad, the British toad, and British frog, *Rana esculenta,* have also been reported as being entirely satisfactory animals for this test. Since the first article in 1948, a number of laboratories have reported their experiences with the *Rana pipiens* test. There is a wide variation in technique among the different authors.

All agree as to the absence of false positive reactions. The accuracy of this test is reported as being extremely high by all but three writers[2,10,18] who report a rather large number of false negatives. It is noted in their articles that unconcentrated urine was used and in small amounts, that all stages of gestation were included in their final figures, that the frogs were not refrigerated and were re-used. As stated previously, this is a test for the presence of chorionic gonadotropin in the urine, and there is a definite threshold at which the test becomes positive. Obviously, the incidence of false negative responses will be lower in those laboratories where the urine was concentrated or where larger amounts of urine were injected and when pregnancy urine in the first trimester only was tested. Improved results are also noted where the animals are not re-used, at least those animals which have previously shown positive responses. One is prohibited from using large doses of whole urine because of the high frog mortality which results. Use of the Scott kaolin adsorption method allows for the injection of the hormonal content of 20 c.c. of urine by injecting only 1 c.c. of detoxified hormonal concentrate. In only three reports of the *Rana pipiens* test to date has concentrated urine been used, and in these reports, the results have been extremely encouraging (Cutler,[4] Brody,[3] Maier[13]). Our results with the urine concentrate confirm the work of these writers. In performing our tests, we have followed closely the technique of Cutler. He reported a 99 per cent accuracy and no false positives in 200 cases. His two false negatives resulted from the re-use of frogs. After discontinuing the re-use of frogs which have previously shown positive reactions, there were no more false negative responses. In our eighty-seven consecutive tests performed to date to aid in the diagnosis and treatment of difficult clinical problems, there were two false negatives. One test was performed before the fourth week of pregnancy, and the specific gravity of the urine was less than 1.010. Only one animal was used in this test. We have since instituted the policy that all negative responses must be corroborated by the use of two frogs. Our second false negative was a test performed upon a woman on her supposedly fifty-seventh cycle day. A repeat test one week later was positive. This patient gave a history of recurrent episodes of amenorrhea, and it is possible that the first test was performed actually earlier in gestation than the fifty-seventh cycle day would indicate. Moreover, only one frog was used in the first test. The policy which we have arrived at to eliminate as many false negative responses as possible and yet to conserve our technician's time and our laboratory animals are as follows:

Two and one-half c.c. of filtered whole urine are injected into one frog. The urine must be a morning specimen with specific gravity of at least 1.010, providing there are 100 c.c. If the volume of urine is less than 100 c.c., a specific gravity of 1.015 is necessary. If the response is positive, the test is completed, usually within one to two hours. If the test is negative after three hours, the urine is then concentrated and injected into two additional animals. If the response is still negative but less than two weeks have elapsed since the patient's last menstrual period (less than the forty-second cycle day), the test is repeated in one week. A negative response should never be accepted before the forty-second cycle day.

Summary

I have found the *Rana pipiens* frog test for pregnancy an excellent and indispensable aid in clinical practice. The work of Cutler, Brody and Maier has been herewith confirmed. In the performance of the test, I should like to stress the importance of meeting the following criteria:

1. Refrigeration of healthy frogs.
2. Careful differentiation as to sex.
3. Duplication of animals (at least in negative responses).
4. No re-use of animals that have shown positive responses.
5. Morning urine specimens of no less than 1.010 specific gravity.
6. Concentration and detoxification of urine (Scott kaolin adsorption method).
7. Non-acceptance of negative responses before the forty-second cycle day.

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ACUTE YELLOW ATROPHY OF THE LIVER FROM SH VIRUS TRANSMITTED BY A BLOOD BANK

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THE condition formerly referred to as acute catarrhal jaundice was clarified during the war as a virus disease which occurs in two closely similar forms: (1) the naturally occuring epidemic or sporadic hepatitis, and (2) the artificially produced serum hepatitis (commonly called homologous serum jaundice).[4] The chief differences in the two forms lie in the mode of transmission and the incubation period. Serum hepatitis is transmitted by parenteral injections of blood, plasma or biological products containing human serum, or by improperly sterilized syringes, needles or medications.[7,8,9] The incubation period of sixty to 160 days is in marked contrast to the ten to forty day incubation period of sporadic or epidemic hepatitis. Tests with human volunteers have shown that specific immunity develops after infection and there is no cross protection between the two forms of the disease.[3,5] These tests have also shown that as little as 0.01 c.c. of serum from a case of serum hepatitis contains sufficient SH virus to transmit the disease.[4]

Clinically and pathologically, serum hepatitis and sporadic or epidemic hepatitis are almost indistinguishable after the onset of the disease. There are two anatomical (or rather histological) types of infectious hepatitis: (1) the hepatocellular type, and (2) the periacinar or cholangiolitic type.[10] Both types occur equally from the sporadic and epidemic virus (IH virus) and from the serum virus (SH virus). In the hepatocellular type the dominant pathological change is a degeneration of the liver cells. Fulminating cases of infectious hepatitis are usually of this type and show extensive diffuse necrosis of the liver cells[9] —the picture of acute yellow atrophy of the liver. In the cholangiolitic type, described in detail by Watson and Hoffbauer,[10] there is an intense inflammatory reaction around the bile ducts with intrahepatic biliary obstruction, and only transient involvement of the liver cells. Severe cases of this type progress to an hypertrophic (Hanots) or sometimes atrophic (Laennec's) biliary cirrhosis, with prolonged regurgitation jaundice.[10]

The combined results of a number of liver function tests gives an accurate differential diagnosis between the hepatocellular type of infectious hepatitis and extrahepatic biliary obstructive jaundice due to stones or carcinoma.[4] However, in the pure cholangiolitic type of infectious hepatitis, the liver function tests may show only the picture of obstructive jaundice, and the differential from extrahepatic biliary obstruction can be made only by laparotomy in some cases.[10] The decision to explore the extrahepatic biliary tract is of great importance since it is well known that surgery has a deleterious effect on infectious hepatitis.

A patient suffering from pulmonary tuberculosis developed a severe serum hepatitis with a combination of the cholangiolitic and hepatocellular types of pathological change.

Case Report

A. B. J., a man, aged twenty-seven, was admitted to the Mineral Springs Sanatorium, Cannon Falls, Minn., December 21, 1943, because of hemoptysis on December 15, 1943. He had had a moderately productive cough and had lost 10 pounds in weight in the past six months. Chest films showed soft infiltration between the first and third ribs on the right. The diagnosis was moderately advanced pulmonary tuberculosis, active. Cultures and guinea pig inoculation of gastric washings were positive. The patient left the sanatorium against advice on December 24, 1943, and refused to return even when he was told of the positive cultures. He continued to live with his wife and two small children and resumed his regular occupation.

The patient was admitted the second time to Mineral Springs Sanatorium on November 24, 1945. Chest x-ray showed soft infiltration had spread to most of the right lung and to the fourth interspace on the left. There was cavitation in the apex of the right lung. He was treated with pneumothorax, pneumolysis, phrenic crush and later oleothorax and pneumoperitoneum. He left the sanatorium a second time against advice on April 1, 1947. Within a few months he was back at full-time work. He did continue pneumoperitoneum refills.

The patient was admitted the third time to Mineral Springs Sanatorium on August 3, 1949, after having more hemoptysis. Sputum smears were positive and x-ray showed further progression in the right upper lobe with increase in the cavitation. He was transferred to Colonial Hospital in Rochester, Minnesota, where a right upper and middle lobectomy was performed on September 23, 1949. Four 500 c.c. bottles of blood from the

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Read at the annual meeting of the Southern Minnesota Medical Association, Mankato, Minnesota, September 11, 1950.

blood bank were given during the operation. One additional pint of blood from the bank was given on September 24, 1949. No plasma or human serum products were given. He was treated also with streptomycin and para-aminosalicylic acid. A one-stage thoracoplasty was performed at Mineral Springs Sanatorium on October 12, 1949. He received one pint of blood during the operation, another on October 14, and another on November 15. Recovery from the operation was rapid and uneventful. He left the sanatorium against advice for the third time on December 5, 1949.

The patient (now aged thirty-three) was admitted to St. John's Hospital in Red Wing, Minnesota, on December 15, 1949, with complaints of nausea, vomiting and jaundice. He reported he noticed nausea first on November 25, 1949, but did not vomit. He had anorexia and occasional nausea between November 25 and December 10. On December 10 he had nausea and vomiting, and he noted a slight yellow color to the skin. On December 12 he noted clay-colored stools and dark urine. He had no pain and no chills or fever.

Physical examination on admission showed a thin, white male with moderately severe jaundice. Temperature, pulse, respiration and blood pressure were normal. Examination of the chest showed a partial collapse of the right chest with relative dullness and absent breath sounds in the apex. The chest was otherwise negative. The heart was normal in size and rhythm, but was shifted slightly to the right. The liver was palpable two fingers below the costal margin in the mid-clavicular line and was firm and non-tender. It did not move with respiration due to right phrenicotomy. The remainder of the physical examination was unremarkable.

Laboratory examinations are shown in Table I. Diagnostic duodenal drainage showed no bile in the first specimen, 1+ test for bile thirty minutes after one ounce of magnesium sulfate and 2+ test for bile thirty minutes after a second ounce of magnesium sulfate.

TABLE I. RESULTS OF LABORATORY EXAMINATIONS

		Day of Disease						
	Normal	7	13	14	21	27	31	38
Hemoglobin	14.5 gm.	13.2					11.2	Expired
Urinalysis		neg.					neg.	
Icteric index	4-6 u.		150	224	277			
Cephalin floculation	0	3+			3+			
Thymol turbidity	0-4 u.		20		76		100	
Prothrombin %	100		67					
Plasma protein	6.4-8%			6				
A/G ratio	1.5-2.0			1.14				
Quantitative fecal urobilinogen	100-150 mg.					3.5		
Bleeding time	1-3 min.						1.5	
Coagulation time	1-7 min.						3.5	

Clinical Course.—From the onset of definite symptoms (December 10) until death (January 16) the patient had completely acholic stools. He was treated with a high protein high carbohydrate diet (P 100, C 250, F 80), 1 to 2 liters of 10 per cent glucose intravenously daily, therapeutic vitamins orally and intravenously, methionine 4 grams daily, crude liver extract 2 to 4 c.c. intramuscularly daily, crude liver intravenously later, vitamin K parenterally, and choline chloride orally for a short time.

For the first two weeks in the hospital treatment was effectively administered, and his general condition was only a little worse than it was at the onset. He took the full diet and medications and in spite of frequent nausea he did not vomit. He was even able to go home to be with his family on Christmas day. From December 28 on, his course was more rapidly downhill, and severe anorexia, nausea, and occasional vomiting made diet and oral medication much less adequate. Jaundice became progressively more intense and anorexia became so severe the patient had to literally force the food down. At no time was the temperature above 98.6° and there was no pruritis. The liver regressed in size until the edge was above the rib margin. Hepatic fetor developed and increased progressively. With the fecal urobilinogen and clinical evidence of complete biliary obstruction persisting after thirty days, faith in our own convictions waned and exploratory laparotomy was performed on January 10, 1950, for a possible complicating extrahepatic biliary obstruction. The extrahepatic biliary passages were collapsed but patent. The liver was slightly smaller than normal and showed a blotchy yellow nutmeg appearance. A biopsy was reported by the hospital pathologist, Dr. Noble, as follows: "Section of biopsy of the liver shows the liver lobules to be encompassed by thin bands of fibrous connective tissue. There is a dense peri-cholangitic reaction. Conclusions: cirrhosis of the liver." For the next four days the patient seemed to improve slightly. On January 15, 1950, he became severely agitated, lost contact with reality and later in the day lapsed into a comatose state. The coma persisted and on January 16, 1950, he died.

Autopsy.—General Observations: The body is that of a thirty-three-year-old, thin, white, male, about 70 inches long and weighing about 120 pounds. The skin has a deep yellowish brown color. There are recent scars of the right rib resection and right upper quadrant laparotomy, and old scars from right phrenecotomy and multiple pneumoperitoneum punctures. The peritoneal cavity contains only about 200 c.c. of clear yellow fluid. All organs and relationships are normal. The liver edge is about two fingers above the costal margin. The thoracic cavity shows about 100 c.c. of yellow clear fluid in each pleural space. The right chest cavity is collapsed in the upper portion and the upper five ribs have been removed. The right parietal pleura is very thick in the apex. Cut section measures 1 centimeter and consists of thick fibrous tissue with diffuse calcium deposits. Only the right lower lobe remains and this has assumed a semi-conical shape but does not ascend to the apex of the thoracic cavity. The heart is shifted slightly to the right. The left lung relationships are normal. There are many scattered adhesions in the apex and posteriorly.

Organs: Cut sections of the left lung show only dependent posterior congestion. The right lower lobe is a dark, dirty brown color and has a solid consistency. Crepitation is moderately reduced. Cut section shows marked diffuse fibrosis. A small amount of serous mucoid secretion is present in the cut section. No nodules or caseation necrosis is seen. The right hilar nodes are surgically absent. The left hilar and mediastinal nodes are enlarged and fibrous in character.

The liver is about half normal size and is quite firm. The surface is smooth and there are no adhesions. The organ is deeply yellow in color and shows an exaggerated mottling or nutmeg appearance. Cut section shows extensive fibrosis and complete distortion of the normal architecture with a marked nutmeg appearance.

The gall bladder is thin walled and contains a small amount of thick greenish brown bile. The bile ducts are intact and are patent throughout. The ampulla of Vater is completely normal in appearance.

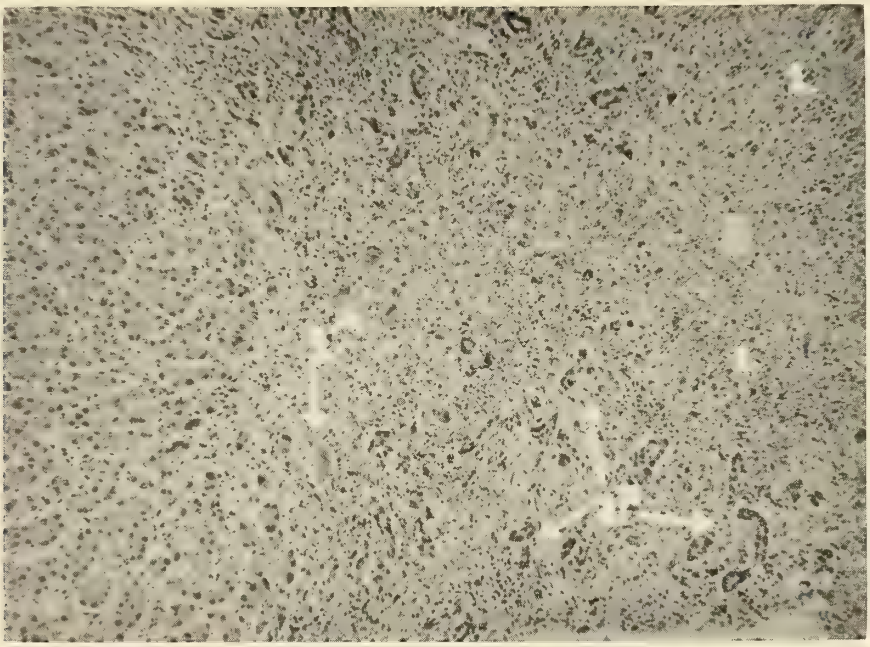

Fig. 1. Photomicrograph of the periphery of a typical liver lobule. Note (1) the intense pericholangiolitic inflammatory reaction with round cell infiltration and fibroblastic proliferation, (2) the marked regeneration of bile ducts, and (3) the liver cell necrosis and large multinucleated liver cell regeneration.

The remainder of the organs are normal or show the usual postmortem changes.

The gross anatomical diagnoses are: (1) acute yellow atrophy of the liver, (2) diffuse pulmonary fibrosis of the remaining right lower lobe.

Microscopic Pathological Changes: The significant microscopic pathological changes are limited to the right lung and the liver. The lower lobe of the right lung shows many small tuberculous lesions with the typical microscopic characteristics. No cavitation is present.

The liver shows extensive destruction of the normal architecture (Fig. 1). There is a great deal of degeneration and frank necrosis of the liver cords. In many areas, however, there are multiple foci of large multinucleated regenerating liver cells. There is an intense pericholangitic inflammatory reaction with fibrosis and round cell infiltration. The bile ducts are patent and the epithelium shows little change. Many minute regenerating bile ducts are present indicating a considerable attempt at regeneration of the intrahepatic biliary system. Only occasional biliary thrombi are seen.

The microscopic diagnoses are: (1) subacute hepatitis with necrosis of liver cells and regeneration of bile ducts, (2) caseous pulmonary tuberculosis.

Comment

At the time of onset this case was similar to most cases of serum hepatitis with combined cholangiolitic and hepatocellular involvement. The incubation period, if figured from the first five transfusions until the onset of definite symptoms, was seventy-nine days. If it is figured from the second group of two transfusions it was fifty-seven to fifty-nine days. Since the patient received no plasma or serum preparations and the mode of onset and clinical manifestation were typical of serum hepatitis, it was concluded that he undoubtedly received the SH virus from one of the blood donors. All the donors had denied a history of jaundice when the blood was donated. It is therefore probable that one of the donors either was in the incubation period of serum hepatitis or was a chronic carrier of the virus after a non-icteric serum hepatitis infection. Until tests are devised to detect the virus in the blood of persons who are otherwise well, this type of accidental transmission of serum hepatitis is unavoidable. Current methods of sterilizing plasma with 2537 Å unit ultraviolet irradiation cannot be applied to whole blood.

For the first three weeks of illness the cholangiolitic type reaction was dominant with complete intrahepatic biliary obstruction and only moderate hepatic cellular involvement. This was indicated by the clinical course, the return of prothrombin function to normal and the liver biopsy showing the intense periacinar reaction. From then on, however, the course was that of severe hepatic necrosis and the patient had a typical hepatic death.

This case represents a combination of the two histological types of infectious hepatitis—first, the intense cholangiolitic reaction with persistent complete intrahepatic biliary obstruction, and second, the hepatocellular degeneration with extensive necrosis, atrophy, hepatic fetor and hepatic death.

Summary

A case of serum hepatitis transmitted by a blood bank is presented. The patient showed a predominant cholangiolitic hepatitis with complete intrahepatic biliary obstruction and early biliary cirrhosis, and then developed marked hepatocellular degeneration and died with the characteristics of acute yellow artrophy of the liver.

The authors are indebted to Dr. J. R. McDonald of the Mayo Clinic for the microscopic pathological studies and for the photomicrograph of the liver.

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EMERGENCIES IN THE NEWBORN PERIOD

(Continued from Page 1207)

and hyperthermia but no shock until a few minutes before death. Massive adrenal hemorrhage was the only positive finding at postmortem examination.

Convulsions may also be evidence of a kernicterus developing in an infant with erythroblastosis fetalis. Convulsions with evidence of hydrocephalus or microcephalus may suggest toxoplasmosis.

There are many other conditions during this period of life which require immediate action: atresias of the bowel, a large omphalocele, imperforate anus and other anomalies requiring surgical treatment should be operated upon as soon as possible. Surgical procedures are best tolerated in the newborn if done within the first twelve to eighteen hours after birth. Birth paralyses, congenital dislocation of the hip, clubfeet and metatarsus varus of severe degree will all benefit by treatment instituted during the newborn period. It is not within the scope of this paper to discuss vomiting, diarrhea, infections, abnormalities of the blood and other illnesses of the newborn period.

Summary

Emergencies arising during the newborn period and manifested by cyanosis or abnormal respirations, or both, and those associated with convulsions are discussed in respect to differential diagnosis and treatment.

PRACTICAL CONSIDERATIONS IN THE DIAGNOSIS AND TREATMENT OF ECTOPIC PREGNANCY

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ECTOPIC pregnancy is a gestation in which the fertilized ovum implants itself in some other site than the usual endometrium. The incidence is about four ectopic pregnancies for every 1,000 live births. An ectopic pregnancy, by definition, may occur in a tube, ovary, abdomen, rudimentary uterine horn or endometriotic pocket, and in a tube after hysterectomy.

There are many conjectures as to the cause of ectopic pregnancy. It is noteworthy, however, that in the majority of cases there is a history of sterility and previous pelvic infection involving pelvic operation or appendectomy.

Diagnosis

A woman in the childbearing age who after an anomalous menstrual period has a sudden sharp pain in the lower abdomen, often accompanied by a feeling of fainting, and who on examination has a tender cervix and a tender adnexal mass, most often presents the picture of an ectopic pregnancy rupturing at its commonest site, the outer third of the tube.

Unfortunately the symptoms of ectopic pregnancy vary with the site of implantation, and the classical picture may have all the fuzziness of modern art and be as difficult of interpretation as a surrealist painting. In a series of 1732 collected cases, only 63 per cent were diagnosed correctly preoperatively.

With the classical picture as a background we might attempt to consider the diagnosis of ectopic pregnancy of three types: (1) the explosive type, (2) the unruptured ectopic, and (3) the atypical ectopic.

The Explosive Type.—Occasionally the first intimation of an ectopic pregnancy is massive intra-abdominal hemorrhage, which comes on so suddenly that the site of hemorrhage cannot be determined. Generalized abdominal tenderness, rigidity, rebound tenderness, increasing shock, may simulate a perforated ulcer, mesentric thrombosis, splenic rupture. Clues to the site of hemorrhage may be the gradual development of shoulder-strap pain and the bulging cul-de-sac. In general, the nearer the uterus, the more explosive the rupture of ectopic pregnancy. An interstitial pregnancy may rupture with fatal massive hemorrhage even before a missed or anomalous period.

First, one should treat the shock. Glucose, saline, plasma and blood may all be used intravenously in arms and legs. As soon as the patient is recovering from shock, then emergency abdominal operation preferably under local infiltration anesthesia supplemented when necessary by pentothal, is indicated to find and ligate the source of the hemorrhage.

Unruptured Ectopic Pregnancy.—About 10 per cent of ectopic tubal pregnancies are diagnosed before rupture. The following signs and symptoms are suggestive of unruptured ectopic tubal pregnancy. A woman in childbearing age who has been sterile for some years misses a period and begins to have nausea and engorging breasts. On pelvic examination the uterus is found softened and enlarged and a pelvic mass is found in one adnexa. The Friedman test is positive. Culdoscopy shows enlarged engorged uterine tube.

There is no expectant treatment for unruptured ectopic pregnancy.

Atypical Ectopic Pregnancy.—All too frequently the correct interpretation of the symptoms and signs requires all one's diagnostic acumen and hunch. It has been estimated that 15 to 30 per cent of ectopic pregnancies are so atypical in symptoms and signs that a correct diagnosis is not made preoperatively. The different sites of implantation, the varying amounts of intra-abdominal bleeding, survival or death of the fetus—all tend to produce bizarre findings which, in such atypical cases, may persist or may vary over days, weeks or months.

I. Symptoms

1. Bleeding.—Uterine bleeding follows a few days after an early period and recurs with crampy lower abdominal pains.

2. Pain.—Lower abdominal unilateral pain, usually crampy, is often the first complaint. Sometimes however, the pain shifts to various quadrants with varying posi-

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Read at the annual meeting of the Southern Minnesota Medical Association, Mankato, Minnesota, September 11, 1950.

tions of the patient and may simulate gall-bladder colic, perforated ulcer pain, or produce the inspiratory "grunt" of basal pneumonia.

II. Signs

1. Ileus.—Slight to moderate ileus is almost invariably present and is frequently overlooked.

2. Abdomen.—Abdominal tenderness, usually in the lower abdomen, varies with the amount and activity of bleeding and the position of the patient.

3. Pelvic Examination.—When present, the excruciating tenderness of the cervix is diagnostic, but the rupture may be so old that little tenderness is elicited. A unilateral tender mass may be found but the enlarged corpus luteum of early pregnancy—tingling breasts, nausea, frequency—suggest gestation but do not locate it.

Differential Diagnosis

In arriving at a diagnosis of ectopic pregnancy one should consider the following: (1) abortion, in progress or incomplete, (2) salpingitis, (3) appendicitis, (4) ruptured or bleeding corpus luteum cyst or ovarian follicle, (5) ovarian cyst with torsion of pedicle, (6) endometriosis, (7) gall-bladder colic, (8) pleurisy, (9) perforated peptic ulcer, and (10) any abdominal emergency.

Since "commonest things are still commonest," and abortion results in one out of every four or five conceptions, one must consider abortion as the most likely probability.

	Abortion	*Ectopic Pregnancy*
Onset of pain:	Gradual	Sudden, often with fainting
Site:	Generalized lower abdominal pain	Severe and unilateral
Bleeding:	Profuse and external	Slight external
Shock:	Proportional to blood loss	Out of proportion to external bleeding

	Appendicitis	*Ectopic Pregnancy*
Onset:	Sudden	Nausea and vomiting, if present, have been for sometime and are typical of pregnancy
Other signs of pregnancy:	None	Present
Tenderness:	At McBurney's point	Lower abdomen
Pelvic findings:	Minimal	Tenderness

III. Other Diagnostic Aids

Temperature, pulse, blood pressure, white blood count and sedimentation rate may be of value but are all equivocal in atypical ectopic pregnancy.

Pregnancy tests, if positive, are helpful.

Spectroscopic demonstration of hematin in the patient's serum denotes blood in a serous cavity.

Endometrial biopsy, or curettage, which reveals chorionic villi, shows that the pregnancy is or was intrauterine; but when the fetus in an extra-uterine pregnancy dies, the endometrium may show almost any picture.

Cul-de-sac puncture which reveals free blood is diagnostic, and usually, only confirmatory.

Culdoscopy, a relatively simple procedure, is of real value in the diagnosis of atypical ectopic pregnancy, enabling one to visualize the tubes, ovaries, and blood if present.

Points in Treatment

It is advisable not to operate until shock is under control or is being controlled.

Local anesthesia, supplemented with pentothal if necessary, is usually preferable.

The whole tube should be removed, for stumps of tubes tend to be the sites of recurrent ectopics.

Auto-transfusion using the blood found in the abdomen is not very feasible. Its use should be attempted when no other blood is available.

Concomitant operations, such as appendectomy, are usually desirable, depending, however, on the condition of the patient. Such additional surgery apparently does not add to morbidity or mortality.

COMMON INJURIES OF THE KNEE JOINT

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WATSON-JONES made the statement that the most important single factor in the successful treatment of all knee injuries is the maintenance of good quadriceps tone and power. In addition to this might be added the paramount importance of early and accurate diagnosis. If the exact nature and extent of the injury is ascertained, it is usually possible to apply rational treatment at an early time. The aim of treatment of all injuries to the knee not involving fractures is to avoid a weak and unstable knee. The function of stability is that of the four principal ligaments of the joint plus the quadriceps mechanism.

The quadriceps mechanism consists of the four anterior muscles of the thigh converging into the patella and through an aponeurosis on either side into the patellar tendon. It not only provides the power of extension for the knee but also is an important factor in the stability while in active motion and weight bearing.

The four principal ligaments from the functional standpoint are the two collateral ligaments, medial and lateral, and the anterior and posterior cruciate ligaments. The collateral ligaments prevent abduction and adduction of the knee and are most efficient when the knee is fully extended. Testing for the continuity of these ligaments should be done only with the knee fully extended. The anterior cruciate ligament prevents forward displacement of the tibia on the femur, while the posterior cruciate ligament prevents backward displacement of the tibia. These functions should be tested with the knee flexed to 90 degrees. The first procedure which should be done when confronted with the problem of diagnosis in cases of acute injury of the knee is to secure good anteroposterior and lateral roentgenograms of the knee joint. Special views such as oblique, intercondylar notch, or special patellar views may be necessary to rule out fractures absolutely. If a fracture is not present, it may not be possible to determine for the first twenty-four hours the exact extent of the injury to the joint.[1] If there is any doubt, it seems the best policy to put the patient to bed with the affected leg elevated and to apply ice to the knee joint to reduce as much as possible the edema and hemorrhage. It is thus essential to test carefully all the ligamentous functions which have been described. If there is real doubt because of a low pain threshold or other reasons, it may be necessary to anesthetize the patient to determine whether the ligaments are intact.

A contusion, with or without traumatic synovitis and hemarthrosis, is the least serious of injuries to the joint. If no swelling occurs and if ligamentous stability is normal, the injury is minimal, but even in this case the patient must be observed closely and the preservation of good quadriceps tone and power must be maintained by exercise to ensure prompt recovery and avoidance of later disability due to instability.

If swelling of the joint occurs within an hour, hemorrhage into the joint or surrounding tissues is present. If the fluid is intra-articular, it will be possible to palpate a fluid wave. If blood is present in the joint, it should be aspirated and a tight pressure dressing should be applied to prevent further hemorrhage.

On the other hand, if swelling does not occur until several hours after the injury, the fluid is an effusion due to traumatic synovitis. In this case, aspiration should not be carried out, but the joint should be wrapped with a pressure dressing and quadriceps exercises should be begun immediately.

More serious injuries to the knee joint, excluding fractures, involve the collateral or cruciate ligaments and the menisci or semilunar cartilages. Perhaps the most frequently injured ligament is the medial collateral ligament. This ligament is injured by a blow on the lateral side of the knee or by any other force which tends to abduct the joint.[4] Football is the sport most prolific in the production of such injuries. The severity of the ligamentous damage varies from a simple sprain, with tearing of a few fibers but with normal lateral stability, to complete rupture of the ligament with excessive lateral mobility of the joint. If a sprain is diagnosed, the treatment should be conservative. Protection of the ligament by a tight bandage and by raising of the

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Read at the annual meeting of the Southern Minnesota Medical Association, Mankato, Minnesota, September 11, 1950.

inner border of the heel is considered adequate. The importance of early institution of quadriceps and other nonweight-bearing exercises cannot be overstressed.

If there is a complete rupture of the ligament, either plaster immobilization or early operation with surgical suture of the ruptured ligament and inspection of other joint structures should be used. Watson-Jones favored a two or three months' trial of conservative therapy, but most American authors favor early operation for several reasons. One of these is that repair of the ligament is much easier soon after injury. Secondly, it is possible to inspect the joint to find torn menisci and remove them if indicated.

The same principles of treatment apply to injuries to the lateral collateral ligament and to those of the cruciate ligaments. If fracture of the tibial spine occurs with clinical evidence of rupture of the anterior cruciate ligament, an open reduction should be performed. This injury should be regarded as an avulsion of the anterior cruciate ligament at its attachment to the tibia.

Whereas injuries of the collateral ligament occur by application of lateral force on the extended knee, injuries of the menisci occur when weight-bearing rotation forces are applied to the flexed knee, as when a halfback pivots sharply on one leg to avoid a tackler. Medial meniscus tears are several times commoner than those of the lateral meniscus, but the latter are not as rare as had been the common conception several years ago.[2,3] There are two types of meniscus tears. The first is the longitudinal or "bucket handle" tear, and the second is the transverse tear in the posterior horn. The classic sign of the "bucket handle" tear is locking, or inability to extend the knee fully. In addition, there is usually swelling of the knee with pain over the involved meniscus. There may also be a history of sudden "unlocking" with or without manipulation. If it is the first locking, conservative treatment by manipulation, traction or splinting with active quadriceps exercises is in order. However, if repeated locking occurs, the offending meniscus should be excised surgically. The often held misconception that removal of menisci is often followed by a stiff knee is, fortunately, not true, especially if proper attention is paid to exercising the quadriceps mechanism.

Posterior horn tears of either meniscus are more difficult to evaluate. There is no locking but only an uneasy feeling of instability and fear that the knee might lock. The MacMurray sign, that is, the elicitation of a click by rotation of the tibia in the extreme flexed position, is the only reliable sign, but is not always present. Surgical excision of the meniscus is the treatment of choice.

In conclusion, it may be stated that the common ligamentous injuries of the knee joint should be treated according to the structure affected and according to the seriousness of the injury. The most important single factor and the common denominator in the treatment of all these injuries is the active, vigorous exercise of the quadriceps muscle. If this muscle is kept strong, a grave ligamentous instability may be entirely asymptomatic.

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THE RANA PIPIENS FROG TEST FOR PREGNANCY

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History of Medicine In Minnesota

MEDICINE AND ITS PRACTITIONERS IN OLMSTED COUNTY PRIOR TO 1900

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(Continued from the November Issue)

M. Holterman, of Rock Dell, Olmsted County, was listed as a physician in the 1878-1879 edition of the *Minnesota State Gazetteer and Business Directory.* Other information has not been available. It is possible, but not proved, that this practitioner was the Dr. N. S. Holterman, a Norwegian physician, who between 1874 and 1878 was in Kasson, Dodge County.

Joel H. Horton, an eclectic physician, practiced medicine in Rochester, Olmsted County, eight years or more beginning in 1881.

Born in Portage County, Ohio, on April 29, 1830, Joel H. Horton received his early education at Hiram Academy, Hiram, Ohio, and in 1852 took his degree of doctor of medicine at the Eclectic Medical College of Rochester, New York. In the next thirty years he practiced in various places, first in Wooster, Ohio, later in Michigan, in Iowa City, Iowa, and in Hiram, Ohio. From Ohio he came to Rochester, Minnesota, in the summer of 1881 and shortly afterward entered partnership with Dr. E. T. Sedgwick, also an eclectic, with offices in the Olds and Fishback Block on Broadway; Dr. Sedgwick had come to Rochester late in 1879 from Zumbrota. When this association ended, after three months, Dr. Horton took an office in the Heaney Block. In November, 1882, local newspapers stated that his daughter, Frances D. Horton, had come from Springfield, Ohio, to keep house for him at his residence on College Hill; and, a year or two later that Miss Horton had been married in Ohio to Harry Corey, of Fremont, that state.

Dr. Horton was an active member of the Minnesota State Eclectic Medical Society, attending meetings and presenting papers, notably one on eclecticism in medicine, at the fifteenth annual session of the society in June, 1883, at Owatonna; at that meeting he was elected a member of the board of censors. Under the medical practice act of 1883 he received Minnesota state license No. 693 (E), dated December 31, 1883, which he filed in Olmsted County on January 12, 1884.

This practitioner's name appeared occasionally in Rochester newspapers and in certain county records into 1890 and in successive issues of a state gazetteer and business directory from 1884 through 1891. It was not included in the first issue (1906) of the official directory of the American Medical Association nor thereafter.

Dr. Hunt was early in Pleasant Grove, Olmsted County. On March 6, 1869, the *Federal Union* of Rochester, in commenting on the prosperous village of Pleasant Grove, in the township of that name, and its fine class of people, said in part, "For instance, where will you find a more accomplished gentleman than Capt. Mills, Dr. Bardwell and the venerable and the good Dr. Hunt?" Dr. Hunt's name appeared in Mervin's *Business Directory* of 1869-1870, in relation to

Pleasant Grove, and an early settler of Rochester who is now very old has expressed the belief that Dr. Hunt at some time lived in Stewartville, seven miles from Pleasant Grove.

A. T. Hyde, "doctor" perhaps by courtesy, one in a large category throughout the country, was in Rochester, Minnesota, a few years in the late eighteen sixties. Sometimes described as botanist and chemist, he had his headquarters in the grocery store of S. H. Daniels, with whom he was for a time in partnership in the manufacture of Hyde's Gopher State Bitters. The *Rochester Post* of August 15, 1868, quoted the following comment from the *Chicago Republican:* "Rochester is meeting Pittsburgh half way and a bitter contest is on between the bitters produced in the two places. Hostetter has had the field in Chicago but Hyde's Gopher State Bitters are supplanting them. The inventor of these bitters, an experienced botanist, claims to have effected a combination of roots and herbs from western prairies that contain medicinal properties. It has recently been patented and is now manufactured by the laboratory of Daniels and Co. at Rochester. It is meeting with large sale in Minnesota and is gradually working its way into adjacent states. The bitters are highly recommended by those who have tried them." A few months later a grateful patient presented an especially engraved medal to Dr. Hyde as a token of his appreciation of the medical worth of the celebrated bitters; not long after that Dr. Hyde won a silver medal in a bitters competition. In November, 1869, it was announced that S. H. Daniels had purchased the interest of Dr. A. T. Hyde in the late firm of Daniels and Co. and would continue the drug and grocery business.

W. A. Hyde was in Rochester, Olmsted County, probably about three years. Through the summer and autumn of 1863 he announced himself in the local newspapers as physician and surgeon, residence with W. H. Mitchell, opposite the Stevens House, and office over the Union Drug Store (O. W. Anderson and A. F. Childs, proprietors), on Third Street. He asked a fair share of patronage, "having had ten years experience in the practice of his profession, and spent the last year as surgeon in the United States Service, in the *Land of Dixie."* In December, 1863 Dr. Hyde was appointed by the city council to take care of a smallpox patient, who was isolated in a disused log house on the edge of the city. Later it appeared that Dr. Hyde protested that the house was cold and unsuitable and he consequently was absolved of criticism when the patient died and was said to have frozen to death. For many weeks an acrimonious exchange, mentioned in the foregoing narrative, was carried on between newspapers, editors in near-by counties stressing various unpleasant points. Ultimately it became clear that the controversy arose primarily from political differences among editors.

In January, 1864, Dr. Hyde joined Dr. W. W. Mayo in a partnership that lasted less than four months. In June of that year Dr. Hyde was describing himself as an eclectic physician and surgeon, with office and residence upstairs on Broadway, opposite Dr. Cross. In the same month he was appointed city physician, to serve under the council until May 1, 1865.

In September, 1865, stating that he was about to cease the practice of medicine, Dr. Hyde gave "fair notice" and desired all those indebted to him for professional services to call and settle their accounts without delay, and shortly afterward he offered his house and lots for sale. His card continued to appear, nevertheless, and presently he was announced as practicing medicine in Eyota, where he remained some months. By December, 1865, he again was in Rochester and, indiscriminate as to school, was stating that he was a homeopathic physician and surgeon, office and residence on Broadway the first door north of Woodard and Ells Drugstore, his charges "no more than others practicing in this place. Old family medicine cases refilled or altered." In the same issue of the newspaper that carried this card appeared a paragraph, apparently from his hand, extolling the merits of homeopathy.

After July, 1866, although this practitioner may still have been in Rochester, notes about him did not appear in the press. Considerable detail regarding him has been given here because he seems to have been one of a numerous class, peculiar to the time, in claims of experience and abilities, and in changes of location and professed methods of practice.

The *Rochester Post* of July 7, 1893, in an item presumably authorized, stated that **Dr. Jackman,** of Jacksonville, Illinois, had accepted a position on the corps of assistant physicians at the Rochester State Hospital and that Dr. Jackman and Dr. Cyrus B. Eby, another new appointee, would complete the staff of assistant doctors. In none of the detailed published reports of the hospital nor in M. K. Amdur's "A Psychiatric Bulletin in Minnesota of Half a Century Ago" *(Minnesota Medicine,* September, 1942), in all of which are mentioned the physicians who would have been Dr. Jackman's immediate associates, does the name of Dr. Jackman appear.

Frank M. Johnson was in southern Minnesota as a general practitioner of medicine and surgery from 1883 into 1896 and in Olmsted County the last six years of that period.

Born at Fort Atkinson, Jefferson County, Wisconsin, on August 29, 1854, Frank M. Johnson when a child removed with his parents to Vernon County, that state, and there grew up. He attended the high school at Viroqua, took an academic course at Wayland Academy in 1876, and in the three years immediately following studied medicine with Dr. William Gott of Viroqua. Soon afterward he matriculated at Rush Medical College, from which he was graduated in 1882. The scene of his first practice, for a year and a half, was Ontario, Vernon County, Wisconsin, and there he was married to Ida De Lapp, a native of Ontario, born on December 2, 1860.

In September, 1883, Dr. and Mrs. Johnson and their infant son, Lee F. Johnson, removed to Brownsdale, Mower County, Minnesota. Dr. Johnson was licensed in Minnesota on December 31, 1883, receiving certificate No. 958 (R). From Brownsdale he transferred after two or three years to Grand Meadow, where he practiced and ran a drug store until January, 1890, when he settled in Byron, Olmsted County; Dr. Carlos R. Keyes had left Byron a few weeks earlier for Stillwater, where he was an assistant physician at the state prison.

The record in Byron is brief. Dr. Johnson and his family occupied the E. M. Gilbert residence after a few weeks at the Commercial House. A third child, a son, was born while they were in Byron, in December, 1890. Newspaper notes indicate that Mrs. Johnson had relatives in Plainview whom she visited; that the doctor was a Baptist and a prohibitionist, and that in June, 1890, he was nominated for coroner by the prohibition group.

Early in 1892 Dr. Johnson sold his practice to Dr. Amos L. Baker, who was coming to Byron from Pleasant Grove, and in April removed to Dover, where opportunity existed. Dr. A. W. Stinchfield, of Eyota, had joined the Drs. Mayo in Rochester, and Dr. Rollo C. Dugan, of Dover, had succeeded him in Eyota. Before entering the new field and occupying the former quarters of Dr. Hiram

C. Bear who had left Dover two years previously, Dr. Johnson took a postgraduate medical course in Chicago. He early became a member of the Southern Minnesota Medical Association, which was founded in July, 1892. Occasional local items concerning him have been noted: that he brought a patient to Rochester for the opinion of the Mayos; that he assisted Dr. William A. Chamberlain, of St. Charles, in surgical operations on various occasions; that Dr. Horace H. Witherstine of Rochester, went to Dover to see a patient with Dr. Johnson; that the latter had been called to Stewartville.

In May, 1896, the Dover correspondent of the *Rochester Post* stated that Dr. F. M. Johnson and his family had departed for Springfield, Missouri, where they intended to make their home. That residence has been confirmed by the official directory of the American Medical Association, in successive issues of which from 1906 to 1931, inclusive, Dr. Johnson was listed as of Springfield.

C. H. Johnston might be classed as an itinerant practitioner, at least in the years when he first came to Rochester, Minnesota. In November, 1878, he ran notices in the local newspapers that he would be available for consultation at the Pierce House on certain days in November and December. There is evidence, however that later he had his home in Rochester. In February, 1880, the *Rochester Post,* mentioning Dr. Johnston as formerly of this city, reported the birth of a daughter to Dr. and Mrs. Johnston, who then were living near Dodger Center. And in May, 1880, the same paper stated that Dr. Johnston, "a formerly well-known practitioner in this city," had built up a large practice in Minneapolis and Wisconsin and had chosen Minneapolis as a convenient location from which to meet the numerous calls made upon him from all points.

Lewis Halsey Kelley (1808-1872) was from 1857 to 1863 a respected physician and surgeon in Rochester, Olmsted County, and from 1860 to the end of his life a representative newspaper owner, editor and publisher, first in Rochester and subsequently in Owatonna, Northfield and Faribault. After leaving Rochester he practiced medicine to only a limited extent.

Born in Ovid, Seneca County, New York, on October 13, 1808, Lewis H. Kelley received his academic and medical education in schools and colleges in the East, and was married, about 1840, to Angeline E. Rich, of Richford, New York. Data are not exact but it is known that for some time he practiced medicine at Marathon, New York, and that in the middle eighteen forties the family removed to Painesville, Lake County, Ohio; there in 1847 a son, one of the family of eight children, was born. In the early summer of 1857 Dr. Kelley came with his wife and children to Rochester from Painesville in the hope that the Minnesota climate would benefit Mrs. Kelley, who was in failing health; she died in Rochester a few years later.

On arrival in Rochester Dr. Kelley began the practice of his profession. A year later, when the settlement had been incorporated as a city, he began the construction of his Brick Block, the first brick building in Rochester, at the northeast corner of Broadway and College Streets (the latter now Fourth Street, S. W.). Broadway in that day extended two blocks north of the building site, to lose itself in a hazel thicket. Brick for the block was burned in Whitcomb's kiln in East Rochester and was hauled by ox teams across the Zumbro River ford a stone's throw away from the chosen corner. This building of two stories, 22 x 70 feet, stood out in the irregular cluster of small buildings, of logs or boards, that predated it and formed the nucleus of the city. It gave stimulus to civic pride and ambition in Rochester and was for some time the center of activities in the settlement. The Kelley living quarters were on the ground floor rear of the new building; the lower front space was rented to various local merchants in turn: William McCullough, and F. W. Andrews, and Upman and Poole, druggists. The upper space was rented to Messrs. David and Cyrene Blakely, who in 1859 founded Rochester's first newspaper, the *Rochester City Post.* To this home Dr. Kelley brought the first piano ever owned in Rochester, an instrument fascinating to the entire community and most of all to the Indians who thronged the valley and the settlement. When the eldest Kelley daughter (later Mrs. Walter Crocker) played on the "music box," the red men crowded at the windows to watch and listen, grunting their amazement and approval.

Dr. Kelley's professional and training experience are best stated by himself: When in December, 1860, he returned to Rochester after a long absence, he published in the *Rochester Republican* (which he had established that year) his professional card and the following notice:

> Ho! Ye Afflicted! The undersigned would respectfully announce that on return from southern parts after nearly a year, he has made up his mind to locate permanently in the city of Rochester as a
>
> PHYSICIAN AND SURGEON.
>
> He would further state, for the information of the afflicted, that he received the degree of M. B. from the City of Albany, New York, while attending the Medical College of Geneva, New York, and subsequently received the Addendum Degree of his profession at the State Medical College of Indiana; is also a member of the New York State Medical Society and of the College of Physicians and Surgeons, Geneva, New York. And from his extensive practice in the healing art in the East, South, and West, for nearly twenty years, he has made himself acquainted with all the variations and grades of diseases, and feels that all confidences imposed on him in his profession will not be misplaced. He can be found at his office on the corner of Broadway and College Streets, between the hours of 9 a.m. and 3 p.m., on each day, for medical counsel.

An additional note from authentic source indicates that he was graduated from the Geneva Medical College in 1838 and from the Albany Medical College in 1840.

Dr. Kelley was a patriotic and public-spirited citizen who during the Civil War was "an unqualified terror to Copperheads of either side," and a generous helper to the loyal. His notice in his own paper and in other Rochester publications in August, 1862, expressed his wish to serve:

> Medical Notice. The undersigned, desirous of doing something for those who have left their wives and children at home in this city or county, and have volunteered or may volunteer in the service of the Army of the United States, for the purpose of defending the flag of our union and the liberties of our citizens from the ruthless hands of tyrants and traitors; to all such wives and children residing in this city, to them or any of them requiring medical attendance while their husbands and fathers are in actual service in the war now existing in this union, I hereby pledge to all such needful medical services when called upon, free of charge,—and to such persons residing in the county for one half of the usual fee for such services. Dated at the city of Rochester, Minnesota, August 12, 1862.

This physician had various special interests and affiliations. He and his wife were members and supporters of the local Methodist Church which was organized in 1856. Dr. Kelley in August, 1857, was an organizer and the first Worshipful Master of Rochester Lodge No. 21 (A. F. and A. M.). In 1860 "Senator" Kelley was a leader in a movement to improve the public schools of Rochester. In 1861 he was a founder, and the first president, of the Olmsted County Temperance Society.

As noted, Dr. Kelley early became a newspaper editor and publisher. In 1860 he bought (in partnership with his son-in-law W. H. Mitchell, who in 1866 published the first history of Olmsted County), the *Rochester City News* and converted it into the *Rochester Republican,* of which he became local editor in 1861. In the autumn of 1863 he sold the *Republican* and removed his printing equipment to Owatonna, Steele County, where he established the *Plain Dealer,* the first newspaper in that city. In 1868 he removed to Northfield, Rice County, and took over the *Northfield Recorder,* a little later the *Northfield Enterprise;* in 1870 he was in Faribault, publisher of the *Faribault Leader.*

In the summer of 1872, again living in Owatonna, Dr. Kelley lay seriously ill, having been in poor health for nearly a year, "with some disease that seems to baffle the skill of physicians; the doctor from a strong robust man weighing nearly 300 pounds, has gradually pined away . . ." Lewis Halsey Kelley died in Owatonna on September 9, 1872, aged sixty-four years. His funeral rites were conducted at Rochester with full Masonic ceremonies, and he was buried in Oakwood Cemetery beside his wife.

Of Dr. Kelley's family, one son James A. Kelley, died of tuberculosis in 1864 at the age of twenty-three years, at Bowling Green, Kentucky, where he had gone in hope of recovery. Lewis H. Kelley and Pembroke S. Kelley became well known in printing and newspaper circles of the state; in the early eighties they published the *Rochester Post* in the absence of the owner, the Hon. J. A. Leonard. Lewis died in 1892 at Wilmot, South Dakota, where he was publishing a newspaper; Pembroke died in 1929 in Rochester, where he long had had a job printing office. A note on the family appeared in the summer of 1906: the Kelley Brick Block, having become unsafe, was undergoing reconstruction, and the *Olmsted County Democrat,* in giving the history of the building, paid tribute to Dr. Kelley. There were in that year four of the family living: Pembroke; Mrs. Helen Kelley Hart, of California; Mrs. H. M. Lovell, of Minneapolis; and Mary Georgiana, wife of William H. Knapp, of Rochester. W. H. Knapp was for many years a prominent citizen of the city, merchant, business manager of the Rochester State Hospital, and finally executive officer of the Rochester Milling Company. In 1946 descendents of Dr. Lewis H. Kelley, resident in Rochester, were two grandsons, Harold W. Knapp and Spencer M. Knapp (died, 1947), and several great-grandchildren.

Patrick Nicholas Kelly (1858-1903), a native of Olmsted County, Minnesota, was from 1883 into 1890 a physician and surgeon, but chiefly physician and obstetrician, in Rochester.

Born in 1858 at a farm home in High Forest Township, in the vicinity of Carrollville, Patrick Nicholas Kelly was the son of James Kelly and Mary Rooney Kelly. Both parents were natives of Ireland, James Kelly of County Roscommon and Mary Rooney of County Leitrim; both came to America in the early fifties and west to Iowa, where they met and were married, in 1856, at Dubuque. Shortly after their marriage they settled in High Forest Township among neighbors of their own nationality and religious faith; they were among the organizers, in 1859, of St. Bridget's Roman Catholic Church. Their homestead lay about a mile and a half west of the church site. When their five children, Ellen, Mary, Alice, Bridget and Patrick Nicholas, were approaching their teens, Mr. and Mrs. Kelly rented the farm for a few years and removed to Austin to place them in school; later the family returned to the farm, and eventually made their home in Rochester.

Patrick Kelly early went to school in the home district and in Austin. His academic education he received at St. John's College, Collegeville, Minnesota, and at St. Francis Seminary, Milwaukee; his medical training at McGill University, Montreal, from which he took his degree of doctor of medicine in 1883 (sometimes erroneously stated as 1884). He received his Minnesota state license No. 298 (R) on November 10, 1883. Unlike many of his contemporaries, he did not study with a preceptor preliminary to taking his medical course, but during at least his first summer vacation from McGill he read medicine with Dr. Francis A. Sanborn, of Rochester, in offices at the back of the Hargesheimer Drug store on the corner of Broadway and Zumbro Streets, offices that served many different Rochester physicians, preceding and following Dr. Sanborn's occupancy.

On his return to Rochester after some months of postgraduate work in Montreal, Patrick N. Kelly, M.D., C.M., opened an office over Poole's Drug Store and there in April, 1884, he was joined in partnership by his classmate Dr. Robert B. Struthers (M.D., C.M., 1883). Dr. Struthers had come on a visit but within two weeks he took out his state license, No. 871 (R); he remained with Dr. Kelly several months before returning east. After a few years Dr. Kelly occupied larger offices in the Cook Hotel Block.

Six feet tall, slender, blue-eyed, well groomed, dignified by mustache and small side whiskers, the young physician in his twenty-fifth year began his career under good auspices. He came of a family well known and highly respected, possessed excellent native ability, was a brilliant student and had received the best of scientific training. Recollections of persons who knew him and the comments of the local press indicate that early in his professional life his health, probably never robust, began to be affected by the strenuous conditions of practice of time and place. There is more than one account of his country trips, his hazardous crossing of the Zumbro River in flood, of his losing his horse and almost his life in an icy freshet of Willow Brook south of town. Serious illness, accompanied by pulmonary hemorrhage, occurred in 1884, again in 1885, and in subsequent years, in which he was attended by his colleagues the Drs. Mayo and other physicians in the city. He nevertheless continued in active practice; was elected coroner of Olmsted County in 1886, and was for several years a member of the United States board of pension examiners. He was a member of the Catholic Order of Foresters. He was a constant student of biography, history and medicine; his large library was distinguished by many first editions, chiefly Bibles and medical works, in English, French, German and Norwegian.

In the summer of 1890, again having suffered from pulmonary hemorrhage, Dr. Kelly went abroad, to recuperate his health and to improve his knowledge, and studied for three months in London, Berlin and Paris. On his return to Minnesota he announced his removal to Wabasha, Wabasha County, where he occupied the offices previously used by Dr. W. H. Lincoln.

Dr. Kelly was a member of the Minnesota State Medical Society from 1884, a charter member of the Olmsted County Medical Society when it was revived in December, 1885, and a member of the Wabasha County Medical Society (its secretary, 1892-1894, and its vice president, 1900). His contribution of scientific papers to all these groups has been noted, particularly an article on diphtheria, which Dr. W. J. Mayo cited before the state society in 1886, and one on puerperal eclampsia. In Wabasha County, as in Olmsted County, it is said, he was coroner and member of the United States pension board.

Patrick N. Kelly was married in Wabasha on April 21, 1896, to Clara Ginther of that place. The only child of the marriage, a son, died on June 9, 1901. Mrs. Kelly's death occurred on March 9, 1902. At that time Dr. Kelly had been several years in ill health, obliged to spend periods of rest in the south and elsewhere. After his wife's death he returned to Olmsted County and in the summer and autumn of 1902 he lived near Simpson, practicing medicine when able. In December, 1902, he was taken to the farm home of his sister Bridget, wife of M. A. Keane, in Olmsted County, near Pine Island, Goodhue County.

Patrick Nicholas Kelly died at the Keane home on March 11, 1903, at the age of forty-five years, "a man of strictest integrity; as a son, a brother, husband, father, citizen and friend, he fulfilled his duty most faithfully." There were many breaks in the family circle within a few years. James Kelly, the father, died at the home of Mr. and Mrs. Keane in May, 1903. Bridget Kelly Keane died a few weeks later on July 23. Mary Rooney Kelly survived her husband until January, 1907, when she died at her home in Rochester. Bridget and Alice Kelly had been successful teachers in St. Paul; Alice gave up her work to take care of her mother. Ellen, the eldest daughter, had died in girlhood from tuberculosis; Mary became Sister Mary Irene, of the Franciscan Order, in Rochester.

In 1946 there were living of Dr. Kelly's relatives, one sister, Alice Kelly (Mrs. William H.) McGraw, a widow of Grand Forks, North Dakota; a nephew, John C. Keane a chemist, since 1944 general superintendent of the Utah-Idaho Sugar Company, of Salt Lake City, and three grand-nephews, sons of Mr. Keane and Isabelle Langer Keane, M.D.; Mrs. Keane before her marriage was a pediatrician in Minneapolis. A niece, Helen Keane, wife of J. C. Schilleter, who was connected with the Iowa State College, at Ames, died in 1931.

Burney J. Kendall (1848?-1926), physician and surgeon, who practiced in Olmsted County in the period of 1868-1870, was a native of Enosburg Falls, Franklin County, Vermont. Knowledge of him has been derived chiefly, from the reminiscences of the late Dr. David S. Fairchild of Clinton, Iowa, who in 1869-1872 conducted his initial practice of medicine in the village of High Forest, Olmsted County; Dr. Fairchild came to Minnesota from Vermont on the advice of Dr. Kendall, a friend of his youth in a neighboring village.

Dr. Kendall studied medicine under a preceptor in Vermont (it is not known whether he was a graduate of a medical school) and soon afterward came to Minnesota and settled in Marion, with his office in the home of Henry H. Beach of that village. During his stay in the county, Dr. Kendall was a member of the Olmsted County Medical Society and a physician to the Olmsted County poor farm.

After about two years, Dr. Fairchild recalled, Dr. Kendall, convinced that routine practice of regular medicine would not lead to fortune, returned to Vermont, where he began to experiment in concocting patent medicines: "In the course of time he fell on a combination of drugs which was thought to have a beneficial effect on spavin in horses, and by skillful advertising gained a considerable reputation among farmers and horsemen. For many years 'Kendall's Spavin Cure' had a wide reputation. The pictures of fine horses and handsome women ornamented the walls of drug stores everywhere, and fine teams of horses and wagons could be seen on all important highways and 'Kendall's Spavin Cure' was a household name far and wide." Dr. Kendall was not skilled in high finance, however, and was forced by a combine to sell out his interest for some $200,000. This considerable fortune, for that day, he invested in drug interests in Saratoga, New York, and in real estate in Omaha during boom time, with ultimate financial disaster. Dr. Fairchild said, "I saw Kendall but once after he left Marion in 1870. In 1926 I saw a notice of his death in an obscure Minnesota town."

Staunton B. Kendall (1808-1897), a homeopathic physician who for forty years was well known over a large portion of southern Minnesota, in 1883 was described as the pioneer physician of the region of Byron, Olmsted County.

Born on March 17, 1808, at Ira, Rutland County, Vermont he was the son of Ephraim Kendall and Lucinda Brown Kendall, who a few years earlier had come from England to the United States. Ephraim Kendall served with the American troops in the War of 1812.

When Staunton Kendall was thirteen years old he accompanied his parents to Canton, Bradford County, Pennsylvania, and there and at Wellsborough, in adjacent Tioga County, received his early education. On coming of age he learned carriage making, a trade which he followed until ill health forced him to abandon it. At the age of thirty-two years, he took up the study of medicine and after two years under Dr. Welles, a homeopathic physician, he began independent practice.

Staunton B. Kendall was married on December 18, 1832, to Fanny Fellows, a native of Shelburne, Franklin County, Massachusetts, born on March 15, 1815. In 1853 Dr. and Mrs. Kendall came west with their children. In Wyanet, Bureau County, Illinois, the doctor practiced medicine for three years. In 1856 he came to Dodge County, Minnesota, and took up land in Ashland Township. Six years later he sold the farm and bought land near Byron, Kalmar Township, Olmsted County, and after three years established the family home in Byron. In 1867 Dr. Kendall built Byron's first hotel, which he ran for eight years, after which his son, Joseph B. Kendall, took it over. In 1869 Dr. Kendall opened a drug department in his son's general store and there dispensed his own drugs. Eckman and Bigelow, in writing of early medicine in Dodge County, mentioned Dr. Kendall and quoted his granddaughter, Miss Aurilla Kendall, of Byron: "The older settlers say that they could get prescriptions filled in Byron when they couldn't get them in Rochester."

At all times Dr. Kendall practiced his profession in addition to following other occupations. He became well known to settlers living within a radius of fifty miles of Byron, and it was said that at the height of his work as a physician, in a year in which 700 patients came under his care, he lost only two, one from diphtheria and one from cerebral meningitis. Exceedingly active, abstemious, a Methodist, a Whig in early times and later a Republican, he was always honored and respected.

When the Southern Minnesota Homeopathic Medical Society was organized at Owatonna in October, 1871, Dr. Kendall was present with other homeopathic physicians from Olmsted County, and the following year he became a member. This society was an active component of the state homeopathic society. On May 28, 1883, Dr. Kendall received state exemption certificate No. 428-3 (H), on the basis of proved years of practice.

In the eighteen eighties Dr. Kendall gave up his long ride, as the expression was those days, but continued to practice in the village and to maintain his interest in local affairs. His wife died on March 25, 1885, at the age of seventy-two years. When Dr. Kendall died on November 9, 1897, in his ninetieth year, he was survived by four of the large family of children: two sons, Joseph B. Kendall of Byron, John Kendall, formerly of Dodge Center, then of Phoenix, Arizona; and two daughters, Mary Kendall (Mrs. George) Dearborn, of Hudson, Wisconsin, and Aurilla Kendall (Mrs. G. H.) Stevens, of St. Paul. In 1946 surviving Minnesota relatives of this pioneer physician were seven grandchildren: Miss Aurilla Kendall, of Byron; Mrs. M. F. Little, of Rochester; Miss Calla Kendall, of Minneapolis; all daughters of the Hon. Joseph B. Kendall, who, like his father, was long an influential figure in Olmsted County, in private business and in public affairs. Leonard Dearborn and George Dearborn were in St. Paul; Mrs. Helen Dearborn Huelster was in White Bear Lake; and Mrs. Ruth Dearborn was in San Francisco, California.

Carlos (sometimes given **Charles) Royal Keyes** (1856-1938) was from early 1882 into 1889 a resident physician and surgeon of Byron, Olmsted County, active in professional and civic affairs.

Born on April 21, 1856, at Chelsea, Orange County, Vermont, Charles R. Keyes was a son of Samuel M. Keyes and Olive Hanson Keyes, both of whom were natives of Chelsea, as were their parents. His maternal grandfather served on the American side in the War of 1812. Charles Keyes grew up on the home farm near Chelsea, attended the district school and Chelsea Academy, was a student at Dartmouth College, and on completion of two years at the medical department of the University of Vermont, at Burlington, he received the degree of doctor of medicine in 1881.

After practicing medicine a few months in Chelsea, Dr. Keyes came to Olmsted County, in February, 1882, and soon entered partnership with Dr. Isaac Hall Orcutt, of Byron. Dr. Orcutt was then relinquishing his professional ride and limiting himself to an office schedule. In January, 1883, Dr. Orcutt retired from practice, and as Dr. Staunton B. Kendall, venerable pioneer physician of Byron, was reducing his work, the young doctor was needed. Dr. Keyes was licensed in Minnesota on November 24, 1883, receiving certificate No. 383 (R).

In Byron, Dr. Keyes spent seven years that were filled with general village and country practice and active participation in community affairs. An old resident recalls him as short and slender, always kind, the finest of men. He was married on December 5, 1885, to Ella V. Sinclair, one of the six children of George Sinclair, farmer and native of Maine, who settled in Kalmar Township in 1856.

Dr. Keyes' professional card appeared in various newspapers of Dodge and Olmsted Counties. For a time he was local correspondent for the *Kasson Vindicator,* relaying news of Byron and Kalmar Township. He was a Baptist and a Republican; a member of the village council, its recorder and sometime president; president of the Byron Library Association, for which Mrs. Keyes was librarian. From 1882, succeeding Dr. Orcutt, through 1889, he was county physician for the village of Byron and the townships of Salem and Kalmar, and also was local health officer.

In December, 1889, Dr. Keyes accepted an appointment as assistant physician at the state prison at Stillwater, to begin on January 1, 1890. When he left Byron, the village announced its need of a physician, with the result that within a few weeks Dr. Frank M. Johnson came from Grand Meadow, Mower County.

Early in 1891 Dr. Keyes removed from Stillwater to West Duluth, where he spent the remainder of his long life, continuing in his tradition of professional and civic activity. He was a member of the Olmsted County Medical Society, the Minnesota State Medical Society, from 1888, the St. Louis County Medical Society and the American Medical Association. His favorite recreations in the Duluth era were hunting and curling.

After fifty-seven years as physician and surgeon Dr. Keyes died on August 10, 1938, at the Webber Hospital, Duluth, from coronary thrombosis, in his eighty-third year. Mrs. Keyes survived him.

(To be continued in the January issue)

President's Letter

THOUGHT AND CELEBRATION

With the holiday season—the religious significance of Christmas and the extended implication of new hope and new life that is inherent in New Year's celebrations—we come inevitably to a re-evaluation of fundamental values and objectives.

For, no matter how obscured with mythology and tinseled superficiality our observance of Christ's birthday becomes, still in some thoughtful and reflective moment we experience anew the inspiration that is centuries old and resolve to empower our lives with this moving force, rather than with the selfish personal ambitions that we often rationalize as independence and initiative.

It is a time for gratitude, humility and rededication to the principles of Christian living and, as physicians, we seek to apply those attitudes toward the conduct of our professional lives, so that our work may make its contribution to the advancement of humankind.

As physicians and as inhabitants of a world fraught with fear, frustration and suffering, we can be thankful, during this time of contemplation, for the miraculous discoveries of science that have been given us to use for the greater good of our fellow men. We can be grateful that freedom and human dignity, the God-given qualities that can make man godlike, have been preserved and regarded in a new light of reverence.

In wishing you the blessing of a joyous holiday, may I add, too, my appreciation for the opportunity of serving as your president this year and my thanks for the fellowship and co-operation you have unfailingly offered me.

J. J. Elias.

President, Minnesota State Medical Association

Editorial

Carl B. Drake, M.D., *Editor;* George Earl, M.D., Henry L. Ulrich, M.D., *Associate Editors*

NPH INSULIN

THE IDEAL INSULIN would be one that had its maximum effect at the height of digestion of the three meals and minimum from midnight on.

The action of plain insulin is very fleeting. It was Hagedorn and his group in Denmark who discovered that the addition of protamine prolonged the action of insulin. The addition of zinc further prolongs the action. The addition of 1.25 mg. of protamine and 0.2 mg. of zinc per 100 units as in protamine zinc insulin prolongs the action of the insulin much longer than twenty-four hours and its initial action is so slight that frequently regular insulin must be added to provide early action after injection. The conversion of some of the regular insulin into protamine insulin by this mixing makes the amount of each in a mixture uncertain.

NPH insulin (neutral protamine Hagedorn) is an insulin with the addition of 0.5 mg. of protamine per 100 units and also zinc. Its action is said to last from twenty-six to thirty hours so that there is very little overlapping of dosage from day to day. Although it is not as prompt in its action as plain insulin, it is more prompt than protamine insulin, its maximum action coming seven to eleven hours after injection, and its action during the night being minimal. The new NPH insulin has been found to control the glycosuria in many diabetics who formerly required protamine and plain insulin mixtures. The elimination of the need for mixing two insulins is of course an advantage. It is claimed that plain insulin can be added to the NPH insulin without disturbing the prompt action of the plain because of the lesser content of protamine available for combination.

The NPH insulin is being widely used. It would seem that it represents a distinct advance in the insulin treatment of diabetes.

WORLD MEDICAL ASSOCIATION

SOME 500 medical leaders from twenty-eight nations of the world met in New York in October to discuss world medical and health problems. The World Medical Association is a voluntary organization of the national medical associations of forty-one countries. This is the fourth annual meeting and the first to meet in the United States.

Dr. Louis H. Bauer, chairman of the board of trustees of the AMA, is also secretary-general of the World Medical Association with headquarters in New York City.

Russia has never been represented in the WMA, and at present the countries in the Russian bloc also do not send representatives.

On October 17, Dr. Elmer L. Henderson of Louisville was inaugurated as president of the WMA. Last June he was inaugurated as president of the AMA and thus he holds the presidency of the two largest medical associations in the world. At his inauguration, he called attention to the fact that "physicians by their thinking, spirit and effort can set an example for governments, diplomats and people everywhere to preserve the peace."

Dr. Charles Hill of London, retiring president, was unable to attend, but in his message he expressed serious dissatisfaction with the present British National Health Service. He wrote that the general practitioner in England is losing both patients and prestige and that, if it becomes clear that no prospect for satisfactory settlement is in sight, "preparations should be made for a withdrawal of general practitioners from the National Health Service."

At one spirited session, delegates voted "to condemn the practice of euthanasia under all circumstances" as "contrary to the public interest and to medical principles as well as to natural and civil rights." Dr. S. G. Sen of India and Dr. E. A. Gregg of Great Britain favored "mercy death with the consent of the patient and the state to bring an end to intolerable suffering." Delegates from the United States, Ireland and

France were strongly opposed. Dr. Marcel Poumailloux of France declared that approval of euthanasia would "open the door to all possible crimes and criminal practices."

WMA delegates voted to authorize the council to consider any applications of doctors of Western Germany and Japan to membership, despite the protests of two Israeli physicians on the grounds that many doctors in Germany had been involved in such human experiments as forced sterilization and vivisection of humans.

Scientific sessions included addresses on the latest advances in endocrinology, gastroenterology and the therapeutic uses of blood and its derivatives.

Dr. Dag Knutson of Djursholm, Sweden, was unanimously chosen president-elect of the association to take office at the fifth general assembly of the WMA to be held in Stockholm, Sweden, September 15 to 20, 1951.

One courteous gesture in connection with this year's meeting was the defraying of the cost of meals for the foreign physicians during their five-day attendance by fourteen American business firms. Other prominent business concerns presented each of the 120 wives accompanying their physician husbands from all over the world with a gift package containing a variety of American products.

The World Medical Association surely offers a medium for promoting understanding throughout the world and has so far utilized its opportunities

POLIOMYELITIS IN MINNESOTA

THROUGH the courtesy of Dr. D. S. Fleming, chief of the Section of Preventable Diseases of the Minnesota Department of Health, we are able to report the incidence and mortality of poliomyelitis in Minnesota this year from January 1 to October 31.

The Minnesota Department of Health received reports of 418 cases of poliomyelitis, including seventeen deaths in Minnesota residents during this period. Sixty-two cases, including four deaths in out-of-state residents, were also reported.

It has long been recognized that poliomyelitis, while appearing sporadically in the winter months, has its greatest incidence in August, September and October. Poliomyelitis acted in this respect true to form again this year, as the following figures attest. The 418 cases had their onset as follows: January—9, February—1, March—2, April—1, May—4, June—11, July—34, August—120, September—140, October—96.

By sex, 239 (57 per cent) were male and 179 (43 per cent) were female. Of the seventeen deaths, ten patients were male.

According to age, 100 occurred in the first four years of life, 165 in the 5 to 14-year age group and 153 in the 15-year and older group. Three deaths occurred in the first age group (0 to 4 years); four in the second group (5 to 14 years); and ten in the third group (15 years and over).

By type, 206 were paralytic (75 bulbar and 131 spinal); 165 were non-paralytic, and 47 were not stated.

The 418 cases and seventeen deaths have been reported from fifty-eight counties, as follows:

County	*Cases*	*Deaths*
Aitkin	2	
Anoka	7	1
Becker	1	
Beltrami	0	
Benton	3	
Big Stone	0	
Blue Earth	12	
Brown	10	
Carlton	18	2
Carver	5	
Cass	0	
Chippewa	2	
Chisago	2	
Clay	1	
Clearwater	1	
Cook	0	
Cottonwood	0	
Crow Wing	4	
Dakota	2	
Dodge	0	
Douglas	2	
Faribault	9	
Fillmore	0	
Freeborn	27	
Goodhue	4	
Grant	1	
Hennepin, excl. of	22	
Minneapolis	80	3
Houston	1	
Hubbard	1	
Isanti	2	
Itasca	0	
Jackson	2	
Kanabec	0	
Kandiyohi	5	1
Kittson	0	
Koochiching	0	
Lac qui Parle	0	
Lake	2	
Lake O' Woods	0	
Le Sueur	2	1
Lincoln	0	
Lyon	0	

McLeod	2	
Mahnomen	0	
Marshall	1	
Martin	3	
Meeker	1	
Mille Lacs	1	
Morrison	5	
Mower	13	
Murray	0	
Nicollet	2	
Nobles	1	
Norman	0	
Olmsted	7	1
Otter Tail	2	
Pennington	0	
Pine	1	1
Pipestone	2	
Polk	1	
Pope	5	
Ramsey, excl. of	7	1
St. Paul	35	2
Red Lake	0	
Redwood	9	1
Renville	1	
Rice	2	
Rock	0	
Roseau	0	
St. Louis, excl. of	12	
Duluth	30	1
Scott	0	
Sherburne	2	
Sibley	0	
Stearns	9	1
Steele	9	
Stevens	0	
Swift	0	
Todd	0	
Traverse	4	
Wabasha	0	
Wadena	1	
Waseca	3	
Washington	2	
Watonwan	1	
Wilkin	0	
Winona	8	
Wright	5	1
Yellow Medicine	1	

Although the figures quoted are for the first ten months of 1950 only and a number of additional cases have already been reported since October 31, it is obvious that Minnesota has been fortunate this year in comparison with the ten worst years since 1915 as listed below:

Year	*Cases*	*Deaths*
1916	912	105
1921	702	102
1925	955	145
1930	479	37
1931	811	66
1939	564	53
1944	530	37
1946	2,881	226
1948	1,387	110
1949	1,715	110

MATERNAL MORTALITY STUDY IN MINNESOTA

The state-wide survey of maternal mortality being conducted by the Committee on Maternal Welfare of the Minnesota State Medical Association with the co-operation of the Minnesota Department of Health has been in progress since April 1, 1950. Up to this time, twenty maternal deaths have been reviewed. As a result of the study so far, it has become apparent to the Committee that several matters need to be emphasized and called to the attention of everyone concerned.

Physicians and personnel in charge of hospitals are urged again to report all maternal deaths promptly by telephone to the Division of Maternal and Child Health of the State Health Department at GLadstone 5973 (Minneapolis), reversing the charges for such calls. Early interviewing of physicians, nursing staff and immediate relatives concerned would be facilitated if this were done and would make for more accurate evaluation of mortality responsibility.

Physicians and hospitals are reminded that the study includes all female deaths where pregnancy is present, even though the pregnancy is not the cause of death. Furthermore, it includes all deaths occurring during a postpartum period of three months following delivery. To clarify the reporting of maternal deaths, therefore, the words "pregnancy" or "postpartum," whichever term applies, should be written on all death certificates to be included in this study, even though neither condition is the cause of death.

The need for adequate office and hospital records becomes increasingly apparent as the study progresses. Current notations on the case history of symptoms, findings, treatment, and progress of the case are extremely valuable in evaluating and placing the responsibility for a maternal death.

Physicians are reminded again that a copy of the Committee's findings in each maternal death may be obtained by the particular physician concerned upon his request.

The Committee is deeply appreciative of the excellent co-operation received thus far from all physicians and hospitals concerned in the present survey and believes that the findings of this study will be a potent influence in further reducing maternal mortality in Minnesota.

James J. Swendson, *Chairman,*
Committee on Maternal Welfare

CHRISTMAS SEALS

The tremendous cost of tuberculosis in terms of lives, suffering, and dollars is emphasized in the 1949-50 annual report of the National Tuberculosis Association.

Killing more than 40,000 persons a year, tuberculosis is responsible for more deaths in this country than all other infectious diseases combined and leads all diseases, infectious or not, as a cause of death in the age group from 15 to 34.

While the tragic cost of tuberculosis in broken lives and broken homes cannot be calculated, the report states that the monetary cost of tuberculosis is estimated at more than $350,000,000 a year. Included in this sum is the cost of care and service for the quarter of a million people known to have the disease and the search for an equal number believed to be tuberculosis victims but unknown to health departments. The sum does not include hospital construction costs.

Since the median age at which tuberculosis kills is 48, the report brings out that the disease each year is robbing the people of this country of 1,500,000 potential years of life, one million of which are working years. (These estimates are based on a life expectancy at birth of 65 and a working age limit of 65 years.)

Yet tuberculosis, a communicable disease, is also a preventable disease, the report states, and can be brought under complete control if the present campaign of the medical profession, the voluntary tuberculosis associations, and official health agencies is stepped up and relentlessly pursued.

Cited among the outstanding requirements to fight tuberculosis are a program geared to the needs of the day; further medical advances in the research and educational fields as well as in the diagnosis and treatment of the disease; more local health units to serve the health needs of all the people; a public better educated in the prevention and control of tuberculosis; more widespread efforts to find people with tuberculosis while the disease is still in an early stage; more hospital beds for tuberculosis patients; more nurses trained in the care of the tuberculous; improved services for tuberculosis patients, and international control of the disease.

While the prediction may be made that at some time in the future tuberculosis may become a medical rarity, the report stresses that close vigilance will always have to be maintained against it. It has already been the target, according to the report, of the "most widely organized, longest sustained, most productive campaign ever directed against a disease." The campaign was launched in 1904 with the organization of the National Tuberculosis Association, which today has 2,987 affiliated associations in the 48 states, the District of Columbia, Alaska, the Canal Zone, Hawaii, and Puerto Rico. The state Christmas Seal organization is the Minnesota Public Health Association.

Ninety-four per cent of the Christmas Seal funds raised is retained within the state where it was contributed to support state and local programs. Six per cent goes to the National Tuberculosis Association for medical research and other activities.

ADVISORY COMMITTEES TO SELECTIVE SERVICE

Instructions were sent out under date of November 17, 1950, to the members of the County Medical Advisory Committees to Selective Service. These committees in the the county medical societies are held responsible for carrying out the procedures set up by the National Advisory Committee to Selective Service. It is their duty to advise local Selective Service Boards within the county medical society area concerning classification of individual members of the local medical profession and, although the local Selective Service Boards are the final authority on deferments, they are expected to follow closely the recommendations of advisory committees.

The Presidential order says that registrants shall be deferred as hardship cases "only if it is determined that (their) induction into the armed forces would result in extreme hardship and privation to a wife, child, or parent with whom he maintains a bona fide family relationship in their home." The order says deferment because of essential service to community shall be granted only "when his induction would cause the availability of essential health services to fall below reasonable minimum standards" in his community.

In addition to the above, State and National Advisory Committee policy, at the present time, is to recommend deferment on the following basis:

(a) Physicians who have not completed at least one year of intern training.

(b) Senior residents prior to the completion of the current year's training.

(c) Full time postgraduate medical students until completion of the current academic year.

(d) Physicians in teaching or research whose activities are considered necessary to the national health, safety or interest.

As we have mentioned before:

First priorities are ASTP or V-12 students or others who were deferred during World War II to continue their education and who subsequently served less than ninety days.

Second priorities constitute those similarly deferred but who served more than ninety days and less than twenty-one months.

First priorities will be processed first.

State and local quotas will be based on the number of registrants in the various categories rather than on the total registration.

The Army is undertaking to offer a reserve commission to every registrant at the time he takes his physical examination and before his induction. However, physicians can volunteer for any military service up to the time they are inducted. Under the law, men involuntarily inducted may not receive the $100 monthly pay bonus which goes to volunteers.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

ELECTION OFFERS NEW CHALLENGE

Now that election noise has calmed down considerably, Americans can reflect upon and analyze the outcome.

Regardless of legislative implications, citizens should not sit back content and complacent, but should continue their vigilance of civic affairs. This public-spirited vigilance will maintain an America where all are free to elect or defeat candidates. Doctors, in their primary role as citizens, should continue their efforts to help keep America among the free nations of the world.

CANADIAN DOCTOR REPORTS ON BRITISH HEALTH SERVICE

Adding his voice to the many who are speaking out against the evils in the British national health service, Dr. A. W. H. Challis of Fort Frances, Canada, told Rotarians in International Falls, Minnesota, recently that "Britain's national health program has resulted in a record-breaking demand for medical and dental service at government expense." Dr. Challis, who reported on the British program from firsthand experience with it, stated that "about 80 per cent of the people who crowd doctors' waiting rooms probably don't need attention at all but must see a doctor to obtain permits for larger rations, discounts or special services."

Cites Overwork of M.D.'s

Dr. Challis stated that the role of "form-filler" isn't pleasing to Britain's doctors because they are trained "to do a special job and do it well." He said:

> "Of the remaining 20 per cent of Britishers who avail themselves of the public health service, about 10 per cent are really sick and the other 10 per cent have minor ailments and disorders that they would have treated themselves in the days before the practice of medicine was nationalized.
>
> "As a result of the heavy patronage, doctors of Britain are terrifically overworked and unable to render the high quality personalized service that the profession normally demands.
>
> "The average British doctor in the national health service will see as many as 100 patients during evening office hours. Much of his time is spent in filling out forms and permits for those not especially in need of attention, at a sacrifice for those who are seriously ill."

Paper Work Overwhelming

Citing the tremendous amount of paper work entailed in the daily operation of the British health system, Dr. Challis told Rotarians that a British doctor must carry as many as forty-two different kinds of government certificates in order to cope with any emergency he may be called upon to handle. "New demands for health service have crowded the hospitals to overflowing, just as they have burdened the individual practitioner. Hospital waiting lists are long and growing longer constantly," he said.

According to Dr. Challis, important surgical cases often have to wait from nine to twelve months. Lesser operations, such as tonsillectomies, have been known to be postponed eighteen to twenty-four months because hospital beds weren't available.

Warns of Mounting Costs

Dr. Challis cited a common fallacy about the cost of the program:

> ". . . the ordinary citizen considers the service cheap, if not free, but actually the program is very expensive. The high costs are reflected in very high taxes on incomes and almost everything else."

The quality of Britain's health service, Dr. Challis concluded, has suffered under the nationalized system. He said, "Britain would have benefited more by raising the general standard of health service under the private practice plan than by offering a lower grade of service on a wholesale scale to everybody, all at once."

LEGISLATOR ASSAILS FEDERAL LOBBYING

Representative Henry J. Latham of New York recently issued a charge that "certainly the federal lobby is the largest and most powerful with which congress must contend." His charge, that the government spends a billion dollars a year to lobby for its proposals, was a countercharge after the lobby investigation committee reported that 152 corporations spent over thirty million in the last three years to influence legislation.

Representative Latham, using studies showing that government lobbying far exceeded that of business, stated that the most conspicuous examples of federal lobbying are the "campaigns for the Brannan plan and compulsory medical insurance."

Latham attacked the trip to Europe of Federal Security Administrator Oscar Ewing and a party of assistants, as "an effort to spread propaganda for the proposed Truman medical program."

Government Printing Tremendous

Studies on government printing alone show that costs run to over $50,000,000 a year, according to Representative Latham. He referred to a study made by Representative E. H. Rees of Kansas, showing sixty-one separate government printing and duplicating plants in Washington, twenty-three in Philadelphia, and sixteen in Chicago, and their respective operating costs.

GOVERNMENT DEBT BIGGER THAN EVER

Almost simultaneously, the Commerce Department issued a statement saying that the "federal government entered this year deeper in debt than all the private firms and individuals put together." The total net federal debt was put at $218,600,000,000, with state and local governments owing another $18,000,000,000.

With the government spending more for lobbying than private interests spend, and involved in more debt than "private firms and individuals put together," some of those individuals might wonder how they would finance the more than $1,500 they would be slated for if the amount were divided evenly among American men, women and children.

HEALTH INSURANCE BOOK ISSUED BY COMMITTEE

The most extensive summary of the arguments for national compulsory health insurance yet assembled, is contained in the new book issued by the Committee for the Nation's Health entitled, "National Health Insurance Handbook—A Practical Guide for Leaders."

The handbook is picayunish, calls names and is based on a false premise. Arguments that compulsory health insurance is not socialized medicine are useless from the start, because any personal service, like medicine, that is administered in compulsory form from the government down to the individual, is, by nature, socialistic.

The book attempts to convince the reader that health insurance is desirable by saying, "NATIONAL HEALTH INSURANCE is a sound American plan of insurance—like Social Security." Obviously, Social Security is not like insurance: almost everyone pays for Social Security, yet there are countless restrictions, rules and regulations on who can and who cannot receive benefits.

In reporting on Americans who favor the plan, the book points proudly to men like Dr. Harold S. Diehl, dean of the University of Minnesota Medical School, twisting his words to put him in the position of favoring the British plan. The book claims Diehl as a national health insurance partisan, but does it through inaccurate and incomplete quotes. What his report really concluded was this:

> "The National Health Service Act is only one facet of British socialism; the welfare state does not exist except as a part of the whole. Furthermore, conditions in Great Britain are so different from those in the United States that it would be folly to contend that what may be necessary for Britain today should be admirable for transfer to the United States. We, fortunately, have the time that is necessary to evolve an adequate medical service for our people without resorting to the centralization of authority in a welfare state."

Misused Words

The book makes flagrant misuse of many words. Among them: "American critics of the British program talk about 'bureaucracy' but avoid actual facts and figures on administration costs." When "critics of the British program" speak of bureaucracy, they are speaking of inevitable costs. They ask "How can costs of bureaucracy be avoided?" and "How can full and complete estimates of cost be made before any administration of the plan is done?" Whenever a middleman is set up between the individual and the goods and services he needs, the costs of those goods and services are bound to rise.

The new booklet presents a "Fact vs. Fiction" section with the warning for the reader to "Remember—the loaded questions are theirs" (meaning the AMA's). One of the questions presented is this:

> "WILL PEOPLE WHO DO NOT WISH TO USE THE GOVERNMENT SERVICE HAVE TO PAY THE TAX?
>
> "Lobbyists say:
>
> "Yes. Everybody with a paycheck will pay the tax, whether he uses the service or not.'
>
> "The truth is:
>
> "Yes, just as we support our police and fire departments though we may not need help.
>
> "Similarly, we also support our public schools, whether we send children there or not."

But obviously, thinking Americans will know that compulsory medicine, with everyone forfeiting a tax out of his paycheck, is the real beginning of more and more compulsion in more and more fields. It is no more difficult, nor more disturbing to think of socialization of the dairy industry, the grocery industry, the lawyers, the steel industry or the clothing industry. Then, Americans would be taxed to get "free" handling of law cases, or "free" steel girders, needed or not.

In such a case, the greatest blow of all would be suffered by traditionally American individual initiative.

Comparing an individual service like medicine to a standardized service like public schools, fire and police departments, is illogical thinking. It opens the way for government control of other individual and personal phases of American life.

MICHIGAN DOCTOR HITS GOVERNMENT MEDICINE

To help combat the forces which make socialistic schemes like government medicine seem favorable to unsuspecting Americans, physicians like Dr. L. Fernald Foster, secretary of the Michigan State Medical Society, are giving the actual facts to the American people. Recently Dr. Foster based a radio talk on the idea that truth is stronger than falsehood, proceeding from there to express the ideas that many doctors would like to put to their patients as aptly. Refuting many of the falsehoods used against American medicine, he said:

> "Fortunately for scientific medicine and perhaps unfortunately for your future health, doctors of medicine are not propagandists. They do not know the art of the 'Big Lie,' which, I am told, if repeated often enough, becomes accepted as truth. They do not practice the art of spreading malicious rumor for they are trained, as you want them to be, in keeping inviolate your confidence and your trust. Doctors of medicine are not generally great writers or speakers. They could not from the rigorous demands of medical education conscientiously devote sufficient time to become masters of the spoken word and engage in malicious propaganda techniques. This the doctors of medicine do know: they know how to keep you healthy; they know how to care for you when you are sick; they recognize and are intensely aware of those factors, both economic and social, that can and do affect your health and well being."

Medicine "Fighting Mad"

Dr. Foster told listeners that because the above things are true, the medical profession is "fighting mad today and is assuming a militant attitude against the purveyors of malicious lies. The profession has no quarrel with Mr. Taxpayer. It is angered because your tax money is being used freely by the propagandists to spread brutal falsehoods which hurt you and your chances for continued good health."

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

230 Lowry Medical Arts Building
Saint Paul, Minnesota

Julian F. DuBois, M.D., Secretary

Fake Doctor Committed to Minneapolis Workhouse for Ten Months

Re: State of Minnesota vs. Frank Herman Gold, also known as "Dr." Frank H. Gould.

On October 25, 1950, Judge John A. Weeks of the District Court of Hennepin County, made an order committing Frank Herman Gold, also known as "Dr." Frank H. Gould, thirty-three years of age, to the Minneapolis Workhouse to serve the balance of a one-year sentence imposed upon Gold by Judge Weeks on January 24, 1950. Gold had been released from the Minneapolis Workhouse on March 21, 1950, on his plea that he had been adequately punished and that he desired to rejoin his family in the State of Washington. Subsequent investigation disclosed that Gold was working in a drug store on University Avenue in Saint Paul. This was in violation of the Court's order releasing Gold.

The Minnesota State Board of Medical Examiners learned that Gold was also representing himself as "Dr." Gould and advising people that he was going into partnership with a physician and surgeon, notwithstanding the fact that he has no medical training of any kind. Through the assistance of Mr. James F. Lynch, County Attorney of Ramsey County, and Saint Paul Police officers, Gold was apprehended on October 23, 1950. At the time of his arrest, Gold attempted to dispose of a stethoscope and other medical articles. The matter was called to the attention of Judge Weeks, who promptly issued an order vacating the order made by the Court on March 21, 1950, and ordering Gold returned to the Minneapolis Workhouse to serve the balance of his sentence.

(Continued on Page 1275)

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

230 Lowry Medical Arts Bldg., Saint Paul, Minnesota

Julian F. DuBois, M.D., Secretary

PHYSICIANS LICENSED FEBRUARY 10, 1950

January 1950 Examination

Name	*School*		*Address*
BANNON, William Gregory	Indiana U.	MD 1945	Mayo Clinic, Rochester, Minn.
BENDER, Leonard Franklin	Jefferson Med. Col.	MD 1948	Mayo Clinic, Rochester, Minn.
BENZ, Edward John	U. of Pittsburgh	MD 1946	Mayo Clinic, Rochester, Minn.
BRAUN, Robert A.	U. of Vienna, Austria	MD 1937	State Hospital, Rochester, Minn.
BRUHL, Heinz Herbert	Albert Ludwigs U. Freiburg, Germany	MD 1928	Minn. School & Colony, Faribault, Minn.
CHRISS, John William	U. of Texas	MD 1944	Mayo Clinic, Rochester, Minn.
CLAYBURGH, Bennie James	Temple U.	MD 1949	St. Luke's Hospital, St. Paul, Minn.
COHEN, Maynard M.	Wayne U.	MD 1944	Veterans Adm. Hospital, Minneapolis, Minn.
COULTER, Patrick Trevor	Queen's U.	MD 1943	Mayo Clinic, Rochester, Minn.
DEAN, Carleton Robert	Wayne U.	MD 1945	204 TWH Phys. Med., U. of Minn. Hospitals, Minneapolis, Minn.
ENGEL, Rudolf C. H.	Friedrich Wilhelms U., Bonn, Germany U. of Minn.	MD 1929 MD 1949	State School & Hosp., Cambridge, Minn.
ESTES, Hubert Ross	Northwestern U.	MB 1947 MD 1949	Mayo Clinic, Rochester, Minn.
HARTMAN, Emma Evelyn E.	U. of Helsinki, Finland	MD 1945	Div. of Pub. Health, City Hall, Minneapolis, Minn.
HENDERSON, James Alexander	U. of Wisconsin	MD 1947	Ancker Hospital, St. Paul, Minn.
JUDGE, Dom Joseph	Georgetown U.	MD 1945	Mayo Clinic, Rochester, Minn.
KELLY, Patrick Joseph	St. Louis U.	MD 1949	Minneapolis Gen. Hospital, Minneapolis, Minn.
KLOTZ, Maurice	U. of Illinois	MD 1934	Veterans Adm. Hospital, St. Cloud, Minn.
KURTIN, Joseph James	Marquette U.	MD 1949	Blooming Prairie, Minn.
LAZARTE, Jorge A.	U. de San Marcos, Lima, Peru	MD 1940	State Hospital, Rochester, Minn.
MANLOVE, Jr., Charles Henry	U. of Oregon	MD 1946	Ancker Hospital, St. Paul, Minn.
MASSA, David John	St. Louis U.	MD 1948	Mayo Clinic, Rochester, Minn.
McCARRAN, Samuel Patrick	Georgetown U.	MD 1946	Mayo Clinic, Rochester, Minn.
MOSSER, Donn Gordon	U. of Kansas	MD 1946	U. of Minn. Hospitals, Minneapolis, Minn.
PETRAKIS, Nicholas Louis	Washington U., St. Louis, Mo.	MD 1946	Mpls. Gen. Hospital, Minneapolis, Minn.
RUSTED, Ian E. L. H.	Dalhousie U., Can.	MD 1948	Mayo Clinic, Rochester, Minn.
SCHWEINFURTH, James Paul	Northwestern U.	MB 1946 MD 1947	Mayo Clinic, Rochester, Minn.
SIMMONS, Daniel Harold	U. of So. Cal.	MD 1949	318 Millard Hall, U. of Minnesota, Minneapolis, Minn.
TAUBERT, Ralph Thomas	U. of Michigan	MD 1949	4317 Webber Pkwy., Minneapolis, Minn.
TAYLOR, William Eugene	U. of Minnesota	MB 1948 MD 1949	1068 Lowry Med. Arts Bldg., St. Paul, Minn.
THOMAS, William Henry	St. Louis U.	MD 1949	Howard Lake, Minn.
TIHEN, Edward Nelson	Northwestern U.	MB 1947 MD 1948	Mayo Clinic, Rochester, Minn.
UTZ, John Philip	Northwestern U.	MB 1946 MD 1947	Mayo Clinic, Rochester, Minn.

Reciprocity Candidates

ASTROM, Algot	Boston U.	MD 1924	State Hospital, Fergus Falls, Minn.
BRODERS, Charles William	U. of Nebraska	MD 1947	Mayo Clinic, Rochester, Minn.
ERNST, Roland Percy	Washington U.	MD 1946	Mayo Clinic, Rochester, Minn.
GREENE, Daniel Edward	U. of Nebraska	MD 1943	309 LaBree Ave. N., Thief River Falls, Minn.
HUBBARD, Theodore Franklin	U. of Nebraska	MD 1946	Mayo Clinic, Rochester, Minn.
KEARNS, Thomas Pryor	U. of Louisville	MD 1946	Mayo Clinic, Rochester, Minn.
MILLER, Ross Hays	U. of Oklahoma	MD 1946	Mayo Clinic, Rochester, Minn.
MYERS, III, Cortland	U. of So. Cal.	MD 1949	Mayo Clinic, Rochester, Minn.
PATRICK, Robert Thornton	U. of Louisville	MD 1944	Mayo Clinic, Rochester, Minn.
PRICE, Richard Dean	U. of Oklahoma	MD 1946	Mayo Clinic, Rochester, Minn.
PURCELL, Howard Malcolm	U. of Tennessee	MD 1946	Mayo Clinic, Rochester, Minn.
RE MINE, Philip Gordon	Med. Col. of Va.	MD 1946	Mayo Clinic, Rochester, Minn.
SCHELL, Robert Frank	Stanford U.	MD 1947	Mayo Clinic, Rochester, Minn.
STEPHENS, William Edward	U. of Wisconsin	MD 1947	609 Med. Arts Bldg., Minneapolis, Minn.
THURINGER, Carl Bernard	U. of Oklahoma	MD 1946	Mayo Clinic, Rochester, Minn.
WALTON, Jr., William Henry	Creighton U.	MD 1947	Ancker Hospital, St. Paul, Minn.

Name	School		Address
WHITE, Jr., Roy	Tulane U.	MD 1945	Mayo Clinic, Rochester, Minn.
WILLIAMS, George Edward	St. Louis U.	MD 1945	Veterans Adm. Hospital, Minneapolis, Minn.

National Board Candidates

BROADBENT, James Curtis	Stanford U.	MD 1947	Mayo Clinic, Rochester, Minn.
COLE, Leon Rykoff	Columbia U.	MD 1946	U. of Minn. Hospitals, Minneapolis, Minn.
DENTON, Clarence	Long Island Col. of Med.	MD 1943	Mayo Clinic, Rochester, Minn.
DOANE, III, Joseph Chapman	Temple U.	MD 1948	Mayo Clinic, Rochester, Minn.
ELIOT, Johan Wijnbladh	Harvard U.	MD 1946	Mayo Clinic, Rochester, Minn.
HERBERT, Jr., Carl Morse	Johns Hopkins U.	MD 1946	Mayo Clinic, Rochester, Minn.
JOHNSON, William Edward	Harvard U.	MD 1945	Mayo Clinic, Rochester, Minn.
JONES, Jr., Robcliff Vesey	Columbia U.	MD 1946	Mayo Clinic, Rochester, Minn.
LASSER, Elliott Charles	U. of Buffalo	MD 1946	U. of Minn. Hospitals, Minneapolis, Minn.
MANN, Richard Hess	Yale U.	MD 1946	U. of Minn. Hospitals, Minneapolis, Minn.
WATTIKER, Bernard John	N. Y. Med. Col.	MD 1944	Mayo Clinic, Rochester, Minn.

PHYSICIANS LICENSED MAY 12, 1949

April 1950 Examination

Name	School		Address
AUGUSTSSON, Hreidar	U. of Iceland	MD 1944	953 Med. Arts Bldg., Minneapolis, Minn.
ALEXANDER, William Harold	U. of Manitoba	MD 1949	Grey Nun's Hospital, Regina, Sask., Can.
BAKER, Perren Laurence	U. of Alberta	MD 1948	Mayo Clinic, Rochester, Minn.
BALOGH, Charles Joseph	U. of Kansas	MD 1946	Mpls. Gen. Hospital, Minneapolis, Minn.
BENUA, Richard Squier	Johns Hopkins	MD 1936	Mayo Clinic, Rochester, Minn.
BRAZOS, John Charles	U. of Illinois	MD 1949	115½ Main St., Watertown, Wis.
BRODIE, Jr., Walter Douglas	U. of Michigan	MD 1949	665 Montcalm Place, St. Paul, Minn.
BUESGENS, Ralph Hubert	Creighton U.	MD 1949	Waterville, Minn.
COURTIN, Raymond Frank	St. Thomas Hospital, London, Eng.	LRCP 1935 MRCS 1935	Mayo Clinic, Rochester, Minn.
EKLUND, Carl D.	U. of Minnesota	MB 1949 MD 1950	State Hospital, Moose Lake, Minn.
FERGESON, James Oliver	U. of Arkansas	MD 1945	Mayo Clinic, Rochester, Minn.
FLANAGAN, John Richard	U. of Alberta	MD 1948	Mayo Clinic, Rochester, Minn.
FORRER, Graydon Randolph	U. of Michigan	MD 1949	Mpls. Gen. Hospital, Minneapolis, Minn.
GRAHEK, Anthony Stephen	U. of Minnesota	MB 1949 MD 1950	619 E. Chapman St., Ely, Minn.
GUY, Jack A.	Col. of Med. Evang.	MD 1950	New London, Minn.
HOOVER, Phyllis Rosander	U. of Minnesota	MB 1949 MD 1950	636 LaSalle Bldg., Minneapolis, Minn.
JEROME, Elizabeth K. Brumbaugh	U. of Illinois	MD 1947	608 Oliver Ave. S., Minneapolis, Minn.
JOHNSON, DeLores Evelyn	U. of Minnesota	MB 1949 MD 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
JUNTUNEN, Roy Raymond	U. of Minnesota	MB 1949 MD 1950	Nashwauk, Minn.
KELLY, Edward Horan	U. of Minnesota	MB 1949 MD 1950	1835 Fairmont Ave., St. Paul, Minn.
LANDRETH, Eugene William	U. of Oregon	MD 1948	Ancker Hospital, St. Paul, Minn.
LUNDQUIST, James Andrew	Cornell U.	MD 1949	520 LaSalle Bldg., Minneapolis, Minn.
MARLOW, Gordon Vernon	U. of Wisconsin	MD 1949	934 Lowry Med. Arts Bldg., St. Paul, Minn.
McCAMPBELL, Malcolm Douglas	Ohio State U.	MD 1948	Mpls. Gen. Hospital, Minneapolis, Minn.
NELSON, Lillian Sonja	Woman's Med. Col.	MD 1948	3411 N. 4th St., Minneapolis, Minn.
NELSON, Maxine Olive	U. of Minnesota	MB 1949 MD 1950	5327 41st Ave. S., Minneapolis, Minn.
OLSON, Carl John	Northwestern U.	MB 1948 MD 1949	2300 Central Ave., Minneapolis, Minn.
PAULSON, Wallace James	N. Y. Med. Col.	MD 1945	U. of Minn. Hospitals, Minneapolis, Minn
PAYNTER, Camen Russell	U. of Illinois	MD 1946	Mayo Clinic, Rochester, Minn.
RITZINGER, Jr., Frederick Ramsay	U. of Illinois	MD 1948	Lakefield, Minn.
TALLAKSON, Alloys Harold	U. of Minnesota	MB 1949 MD 1950	753 E. McDowell, Phoenix, Ariz.
TOMHAVE, Wesley George	U. of Minnesota	MB 1949 MD 1950	Mesaba Clinic, Chisholm, Minn.
WARD, Berl Brant	Indiana U.	MD 1946	Mayo Clinic, Rochester, Minn.
WELCH, John Stanley	Northwestern U.	MB 1946 MD 1947	Mayo Clinic, Rochester, Minn.

Reciprocity Candidates

BOSTWICK, Jackson Leonard	Tulane U.	MD 1939	Mayo Clinic, Rochester, Minn.
CIVIN, W. Harold	U. of Nebraska	MD 1940	Mayo Clinic, Rochester, Minn.
FLAGG, Jr., Geddes Broadwell	Tulane U.	MD 1942	645 Med. Arts Bldg., Minneapolis, Minn
GWINN, John Lemuel	U. of Louisville	MD 1946	Mayo Clinic, Rochester, Minn.

Name	School		Address
HETRICK, Matthew Adam	Jefferson Med. Col.	MD 1942	Mayo Clinic, Rochester, Minn.
HICKEY, Alice Marie	Creighton U.	MD 1948	Maternity Hospital, Minneapolis, Minn.
KROACK, Kalman John	U. of Iowa	MD 1943	New Albin, Iowa
MANDEVILLE, John Weston	U. of Michigan	MD 1946	Mayo Clinic, Rochester, Minn.
MAY, Robert Bertrand	U. of Iowa	MD 1936	State Hospital, Fergus Falls, Minn.
PARSONS, Jr., William Belle	U. of Pittsburgh	MD 1948	Mayo Clinic, Rochester, Minn.
WELLBORN, Jr., Walter Horry	Emory U.	MD 1946	Mayo Clinic, Rochester, Minn.

National Board Candidates

ADAMS, Reta	N. Y. Med. Col.	MD 1936	Sate Hospital, Fergus Falls, Minn.
ALDRICH, Alvin Scott	Harvard U.	MD 1946	Veterans Adm. Hospital, Minneapolis, Minn.
BAHN, Robert C.	U. of Buffalo	MD 1947	Mayo Clinic, Rochester, Minn.
BROWN, Hector Mason	Cornell U.	MD 1948	Walker, Minn.
CLARK, Malcolm David	Harvard U.	MD 1948	4638 Fremont Ave. S., Minneapolis, Minn.
DeREAMER, John Wesley	Duke U.	MD 1946	Mayo Clinic, Rochester, Minn.
FALCONE, Alfonso Benjamin	Temple U.	MD 1947	Dept. Internal Med., U. of Minn. Hospitals, Minneapolis, Minn.
FREEDMAN, Marshall Arthur	U. of Pennsylvania	MD 1944	Mayo Clinic, Rochester, Minn.
FREY, Harry Bradford	U. of Iowa	MD 1947	Veterans Adm. Hospital, Minneapolis, Minn.
GIBB, Robert Pearse	Washington U., Mo.	MD 1948	Mayo Clinic, Rochester, Minn.
HOLT, Allen Howard	Syracuse U.	MD 1948	Mayo Clinic, Rochester, Minn.
HOPKINS, George Jerome	Geo. Washington U.	MD 1946	1918 S. Robert St., South St. Paul, Minn.
KLETSCHKA, Harold Dale	U. of Minnesota	MB 1947 MD 1948	Lake Hubert, Minn.
LUDWIG, James Behan	Washington U., Mo.	MD 1947	University Hospital, Ann Arbor, Mich.
MADISON, Mitchell Stanley	U. of Rochester	MD 1946	Mayo Clinic, Rochester, Minn.
NEUMAN, Harold Wilfred	Queen's U.	MD 1946	Mayo Clinic, Rochester, Minn.
QUER, Erich Alfred	Albany Med. Col.	MD 1946	Mayo Clinic, Rochester, Minn.
RIGLER, Robert Gardiner	U. of Iowa	MD 1948	Mayo Clinic, Rochester, Minn.
SAUNDERS, Jr., Benjamin H.	Harvard U.	MD 1946	Mayo Clinic, Rochester, Minn.
SAXTON, George Albert	Harvard U.	MD 1946	Mayo Clinic, Rochester, Minn.
SIEKERT, Robert George	Northwestern U.	MB 1947 MD 1948	Mayo Clinic, Rochester, Minn.
SPEAR, Harold Charles	Harvard U.	MD 1947	Mayo Clinic, Rochester, Minn.
TAYLOR, Lloyd McCully	Duke U.	MD 1946	Mayo Clinic, Rochester, Minn.

PHYSICIANS LICENSED JULY 14, 1950

June 1950 Special Examination

Name	School		Address
ALLEN, John Howard	U. of Minnesota	MB 1950	Ancker Hospital, St. Paul, Minn.
ALLISON, David Duberg	U. of Minnesota	MB 1950	Ancker Hospital, St. Paul, Minn.
AUSTRIAN, Sol	U. of Minnesota	MB 1950	U. S. Marine Hospital, Galveston, Texas
AUTREY, William Albert	U. of Minnesota	MB 1950	St. Luke's Hospital, Duluth, Minn.
BERGQUIST, James Russell	U. of Minnesota	MB 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
BILLINGS, Harry H.	U. of Minnesota	MB 1950	Tripler Gen. Hospital, Moanalua, Hawaii
BONELLO, Frank Julius	U. of Minnesota	MB 1950	U. S. Marine Hospital, 4141 Clarendon Ave., Chicago, Ill.
BRISBIN, Charles Seamans	U. of Minnesota	MB 1950	Sacramento Co. Hosp., Sacramento, Cal.
BRODERICK, William Claire	U. of Minnesota	MB 1950	University Hospital, Oklahoma City, Okla.
CARLSON, Charles Vincent	U. of Minnesota	MB 1950	U. S. Naval Hospital, Oakland, Cal.
CAVERT, Henry Mead	U. of Minnesota	MB 1950	Dept. Phys., U. of Minn. Med. Sch., Minneapolis, Minn.
CHRISTENSEN, Philip Dixon	U. of Minnesota	MB 1950	Emanuel Hospital, Portland, Ore.
CHRISTOFERSON, Kent William	U. of Minnesota	MB 1950	Mary Hitchcock Mem. Hospital, Hanover, N. H.
COHEN, Henry W.	U. of Minnesota	MB 1950	Strong Mem. Hospital, Rochester, N. Y.
COLLE, Eleanor	U. of Minnesota	MB 1949 MD 1950	4204 Beard Ave. S., Minneapolis, Minn.
CULLIGAN, John Austin	U. of Minnesota	MB 1950	U. of Pa. Hospital, Philadelphia, Pa.
DONATELLE, Edward Patrick	U. of Minnesota	MB 1950	Tripler Gen. Hospital, Hawaiian Islands
DWYER, John Joseph	U. of Minnesota	MB 1950	St. Luke's Hospital, Duluth, Minn.
EASTMAN, Henry Victor	U. of Minnesota	MB 1950	U. S. Naval Hospital, Oakland, Cal.
ELLISON, Evan Sherman	U. of Minnesota	MB 1950	Milwaukee Co. Hospital, Milwaukee, Wis.
FIFIELD, Malcolm McLean	U. of Minnesota	MB 1950	U. S. Naval Hospital, Bremerton, Wash.
FINK, Lewis Darwin	Marquette U.	MD 1949	4089 Union Bay Circle, Seattle, Wash.
FLORINE, Martin Clifford	U. of Minnesota	MB 1950	Gorgas Hospital, Ancon, Canal Zone
FUNKE, Joyce Lucille	U. of Minnesota	MB 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
GAULT, Jr., N. L.	U. of Minnesota	MB 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
GILSDORF, Donald Andrew	U. of Minnesota	MB 1950	Miller Hospital, St. Paul, Minn.
GOLDMAN, Leonard William	U. of Minnesota	MB 1950	Wayne Co. Gen. Hospital, Eloise, Mich.
GRUBER, Matthew	U. of Minnesota	MB 1950	Bremerton Naval Hosp., Bremerton, Wash.

Name	*School*		*Address*
GULL, Hymie Arnold	U. of Minnesota	MB 1950	U. S. Marine Hospital, Staten Island, N. Y.
HAYES, John Burton	U. of Minnesota	MB 1950	Chas. S. Wilson Mem. Hosp., Johnson City, N. Y.
HOLM, Donald F.	U. of Minnesota	MB 1949 MD 1950	1515 Charles Ave., St. Paul, Minn.
HOUGLUM, Arvid Jerome	U. of Minnesota	MB 1950	Denver Gen. Hospital, Denver, Colo.
HOWE, Gerald Everett	U. of Minnesota	MB 1950	San Diego Co. Gen. Hosp., San Diego, Cal.
HUDSON, Heber Scott	U. of Minnesota	MB 1950	Grasslands Hospital, Valhalla, N. Y.
INDIHAR, Jr., John Edward	U. of Minnesota	MB 1950	St. Mary's Hospital, Duluth, Minn.
INGLIS, William Hicks	U. of Minnesota	MB 1949 MD 1950	Redwood Falls, Minn.
JENSEN, Warren Douglas	U. of Minnesota	MB 1950	Baptist Mem. Hospital, Memphis, Tenn.
JOHNSON, Jr., Chester W.	U. of Minnesota	MB 1950	Gorgas Gen. Hospital, Ancon, Canal Zone
JOHNSON, Edward Alfred	U. of Minnesota	MB 1950	Ancker Hospital, St. Paul, Minn.
JOHNSON, Roger Stanley	U. of Minnesota	MB 1950	Ancker Hospital, St. Paul, Minn.
KIEFFER, Sherman Newton	U. of Minnesota	MB 1950	U. S. Marine Hospital, San Francisco, Cal.
KOCHSIEK, Robert Donald	U. of Minnesota	MB 1950	L. A. Co. Gen. Hospital, 1200 N. State St., Los Angeles, Cal.
LANGSJOEN, Per Harald	U. of Minnesota	MB 1950	Letterman Army Hosp., San Francisco, Cal.
LARSON, Donald Marvin	U. of Minnesota	MB 1950	Detroit Rec. Hospital, Detroit, Mich.
LARSON, Leighton Walter	U. of Minnesota	MB 1950	St. Luke's Hospital, Chicago, Ill.
LEAVENWORTH, Jr., Richard Ormond	U. of Minnesota	MB 1950	Ancker Hospital, St. Paul, Minn.
LEWIS, Barton Leonard	U. of Minnesota	MB 1950	San Francisco Hosp., San Francisco, Cal.
LUND, Naomi Gene	U. of Minnesota	MB 1950	U. S. Naval Hospital, Oakland, Cal.
MEADE, Robert Cullings	U. of Minnesota	MB 1950	Milw. Co. Gen. Hospital, Milwaukee, Wis.
MEYER, Robert John	U. of Minnesota	MB 1950	St. Luke's Hospital, Duluth, Minn.
MIKKELSON, Jr., Vernon Edward	U. of Minnesota	MB 1950	Ancker Hospital, St. Paul, Minn.
MILLER, Charles Frederick	U. of Minnesota	MB 1950	Marine Hospital, Seattle, Wash.
MORAN, John Patrick	U. of Minnesota	MB 1950	Wesley Mem. Hospital, 250 E. Superior St., Chicago, Ill.
NORMAN, David Dean	U. of Minnesota	MB 1950	Miller Hospital, St. Paul, Minn.
NORMANN, Jr., Stephen Theodore	U. of Minnesota	MB 1950	Ancker Hospital, St. Paul, Minn.
NOVICK, Rosalind	U. of Minnesota	MB 1949 MD 1950	Deer River, Minn.
O'LEARY, John B.	U. of Minnesota	MB 1950	St. Mary's Hospital, Minneapolis, Minn.
ODLAND, Mark Eugene	U. of Minnesota	MB 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
OPPEN, Melvin Gerhard	U. of Minnesota	MB 1950	Oak Knoll Naval Hosp., Oakland, Cal.
PALM, Neil Merald	U. of Minnesota	MB 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
PEAKE, Eugene F.	U. of Minnesota	MB 1950	Santa Clara Co. Hosp., San Jose, Cal.
PETERSON, Jr., Paul Andrew	U. of Minnesota	MB 1950	Ancker Hospital, St. Paul, Minn.
PREM, Konald Arthur	U. of Minnesota	MB 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
PREMER, Robert Frederick	U. of Minnesota	MB 1950	Detroit Rec. Hospital, Detroit, Mich.
ROLLINS, Pat	U. of Minnesota	MB 1950	St. Luke's Hospital, Chicago, Ill.
ROMNESS, Kenneth Berton	U. of Minnesota	MB 1950	Oak Knoll Naval Hosp., Oakland, Cal.
ROSANDER, John Elihu	U. of Minnesota	MB 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
RYSGAARD, George Nielsen	U. of Minnesota	MB 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
SELLS, Richard John	U. of Minnesota	MB 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
SEMBA, Thomas	U. of Minnesota	MB 1950	Detroit Rec. Hospital, Detroit, Mich.
SHELANDER, Marcus Ignatius	U. of Minnesota	MB 1950	St. Mary's Hospital, 2500 S. 6th St., Minneapolis, Minn.
SMITH, Harry John	U. of Minnesota	MB 1950	Milw. Gen. Hospital, Milwaukee, Wis.
SPAIN, W. Thomas	U. of Minnesota	MB 1950	Swedish Hospital, Minneapolis, Minn.
SPURZEM, Robert Raymond	U. of Minnesota	MB 1950	San Diego Co. Gen. Hosp., San Diego, Cal.
STADEM, Clifford Jennings	U. of Minnesota	MB 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
STRAND, Jack Warren	U. of Minnesota	MB 1950	Ancker Hospital, St. Paul, Minn.
VIX, Vernon Albert	U. of Pennsylvania	MD 1949	7904 St. Charles Ave., New Orleans, La.
WALONICK, Albert L.	U. of Minnesota	MB 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
WEBSTER, David D.	U. of Minnesota	MB 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
ZAHRENDT, O. Lewis	U. of Minnesota	MB 1950	Swedish Hospital, Minneapolis, Minn.
ZIEGLER, Robert G.	U. of Minnesota	MB 1950	St. Luke's Hospital, Duluth, Minn.

Reciprocity Candidates

BOSWELL, J. Thornton	Ohio State U.	MD 1949	Wanamingo, Minn.
JONES, Richard Frank	U. of Oregon	MD 1946	Mayo Clinic, Rochester, Minn.
MIREE, Jr., James	Howard U.	MD 1941	Dept. Rad., U. of Minn. Hospitals, Minneapolis, Minn.
VANDERGON, Keith Gordon	Washington U., Mo.	MD 1949	Mpls. Gen. Hospital, Minneapolis, Minn.

PHYSICIANS LICENSED JULY 14, 1950

June 1950 Examination

Name	*School*		*Address*
AGNEW, Suzanne	U. of Minnesota	MB 1949 MD 1950	Bellevue Hospital, New York 16, N. Y.
ANDERSON, Chester A.	Temple U.	MD 1949	Madison, Minn.
BAARS, Coenraad J. M. W.	U. of Amsterdam, Netherlands	MD 1945	State Hospital, Anoka, Minn.
BARBER, John Roland	U. of Western Ont. Canada	MD 1947	Mayo Clinic, Rochester, Minn.
BROWN, Roland Graeme	U. of Minnesota	MB 1950	L. A. Co. Gen. Hospital, Los Angeles, Cal.
CESNIK, Robert John	Marquette U.	MD 1949	400½ E. St. Germain St., St. Cloud, Minn.
CULP, Ormond Skinner	Johns Hopkins U.	MD 1935	Mayo Clinic, Rochester, Minn.
GIBERSON, Raymond George	Dalhousie U., Can.	MD 1947	Mayo Clinic, Rochester, Minn.
GIBSON, Marvin McCall	Duke U.	MD 1944	Mayo Clinic, Rochester, Minn.
GOLD, David	U. of Minnesota	MB 1949 MD 1950	Veterans Adm. Hospital, Minneapolis, Minn.
HOOVER, Norman Winfred	U. of Minnesota	MB 1949 MD 1950	U. of Minn. Hospitals, Minneapolis, Minn.
KENNEY, Francis David	Rush Med. Col. of U. of Chicago	MD 1941	Mayo Clinic, Rochester, Minn.
KULSTAD, Oscar S.	U. of Minnesota	MB 1949 MD 1950	Dodge Center, Minn.
MacKENZIE, Donald Alexander	U. of Western Ont., Canada	MD 1946	Mayo Clinic, Rochester, Minn.
MUHICH, Ralph Anthony	U. of Minnesota	MB 1949 MD 1950	Letterman Army Hosp., San Francisco, Cal.
POST, Edmund A.	U. of Arkansas	MD 1949	2034 Lincoln Ave., St. Paul, Minn.
SHELDON, Warren Noble	U. of Minnesota	MB 1949 MD 1950	3718 Noble Ave., Robbinsdale, Minn.
SMORSZCZOK, Mitrofan	Stefan Batory U., Wilno, Poland	MD 1939	Monticello, Minn.
WILLIAMS, Robert Reiff	U. of Louisville	MD 1946	Mayo Clinic, Rochester, Minn.

Reciprocity Candidates

ANDREWS, Bernice Fern	Col. of Med. Evang.	MD 1938	Holdingford, Minn.
ARMSTRONG, Wilbur August	U. of Iowa	MD 1942	Mayo Clinic, Rochester, Minn.
BERNDT, Allen Emanuel	Loyola U.	MD 1943	533 Higley Bldg., Cedar Rapids, Ia.
BUCHER, Foster Donald	U. of Nebraska	MD 1949	Starbuck, Minn.
CARSON, Willis Thomas	Southwestern U.	MD 1947	Mayo Clinic, Rochester, Minn.
ELSTON, Lynn Wickwire	U. of Illinois	MD 1916	620-26 Wayne Pharmacal Bldg., Fort Wayne, Ind.
FISCHER, John Robt. Burr	Washington U., Mo.	MD 1949	124 E. Broadway, Owatonna, Minn.
GALLETT, Lester Edward	U. of Wisconsin	MD 1940	2131 W. Old Shakopee Rd., Minneapolis, Minn.
MATTHEWS, James Hall	U. of Arkansas	MD 1947	U. of Minn. Hospital, Minneapolis, Minn.
MILLS, Robert Jeffrey	Western Reserve U.	MD 1946	1829 Med. Arts Bldg., Minneapolis, Minn.
PETERSEN, Arthur B.	U. of Oregon	MD 1947	Mayo Clinic, Rochester, Minn.
VEASY, Lloyd George	U. of Utah	MD 1946	U. of Minn. Hospitals, Minneapolis, Minn.
WRIGHT, Samuel Martin	U. of Pennsylvania	MD 1946	Mayo Clinic, Rochester, Minn.

National Board Candidates

BARNES, Frances Page Shaw	Geo. Washington U., D. C.	MD 1945	State Hospital, Cambridge, Minn.
BRINK, William Richard	Duke U.	MD 1946	Mayo Clinic, Rochester, Minn.
CARLETON, Henry Guy	Harvard U.	MD 1947	Mpls. Gen. Hospital, Minneapolis, Minn.
FIELD, Charles Wiltsie	U. of Rochester	MD 1946	163 Orlin Ave., Minneapolis, Minn.
FRANKLIN, Gordon William	Col. of Med. Evang.	MD 1949	Northome, Minn.
HOEHN, David	Col. of Med. Evang.	MD 1938	Holdingford, Minn.
JUERGENS, John Louis	Harvard U.	MD 1949	Belle Plaine, Minn.
KARGES, Laurel Eugene	U. of Chicago	MD 1949	410 Pokegama Ave. E., Grand Rapids, Minn.
KIELY, Joseph Michael	U. of Illinois	MD 1947	Mayo Clinic, Rochester, Minn.
PRIOLETTI, Mario Joseph	Syracuse U.	MD 1947	5601 Grand Ave., Duluth, Minn.
RANDALL, Osmer Samuel	Johns Hopkins U.	MD 1927	3½ E. Kemp, Watertown, S. D.
SHOLL, Philip Richard	Harvard U.	MD 1946	Mayo Clinic, Rochester, Minn.
SYMMONDS, Richard Earl	Duke U.	MD 1946	Mayo Clinic, Rochester, Minn.
VAN VLEET, Mary Elizabeth	Northwestern U.	MB 1948 MD 1949	Mayo Clinic, Rochester, Minn.
WEHR, Maurice Burton	Geo. Washington U., D. C.	MD 1947	Mayo Clinic, Rochester, Minn.
WILKINSON, Paul Fredrick	Northwestern U.	MB 1947 MD 1949	St. Joseph's Hosp., St. Paul, Minn.

PHYSICIANS LICENSED NOVEMBER 3, 1950

October 1950 Examination

Name	*School*		*Address*
ABERNATHY, Robert Shields	Duke U.	MD 1949	U. of Minn. Hospitals, Minneapolis, Minn.
ABERNATHY, Rosalind G. Smith	Duke U.	MD 1949	3101 Univ. Ave. S.E., Minneapolis, Minn.
BAIN, Robert Clark	Northwestern U.	MB 1949 MD 1950	Mayo Clinic, Rochester, Minn.
BAKER, Jr., Hillier Locke	U. of Chicago	MD 1947	Mayo Clinic, Rochester, Minn.
BERG, Roger Milton	U. of Minnesota	MB 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
COLE, James Sharpley	Indiana U.	MD 1947	Ancker Hospital, St. Paul, Minn.
GAULT, Sarah Jane	U. of Minnesota	MB 1950	221 Walnut St. S.E., Minneapolis, Minn.
GILLESPIE, Andrew Erroll	McGill U., Can.	MD 1948	Mayo Clinic, Rochester, Minn.
GRATTAN, Robert Thomas	Loyola U.	MD 1949	Mayo Clinic, Rochester, Minn.
GUSTAFSON, Maynard B.	U. of Minnesota	MB 1942 MD 1944	Mayo Clinic, Rochester, Minn.
HALVORSEN, Daniel Kasberg	Yale U.	MD 1949	124 W. Bridge St., Owatonna, Minn.
HASSETT, Gerard Roger	Creighton U.	MD 1950	Creighton Mem. Hospital, Omaha, Neb.
HELLER, Edgar Elwood	Bowman-Gray U.	MD 1950	St. Barnabas Hosp., Minneapolis, Minn.
HINDERAKER, Harris Paul	Northwestern U.	MB 1949	Ancker Hospital, St. Paul, Minn.
HOILUND, Lucille Jeannette	U. of Minnesota	MB 1948 MD 1949	St. Barnabas Hosp., Minneapolis, Minn.
KAISER, Irwin Herbert	Johns Hopkins U.	MD 1942	U. of Minn. Med. Sch., Minneapolis, Minn.
KROUT, Robert Melvin	U. of Pennsylvania	MD 1948	Mayo Clinic, Rochester, Minn.
KUNKEL, Jr., William Minster	Johns Hopkins U.	MD 1946	Mayo Clinic, Rochester, Minn.
MEINCKE, Ralph Frederick	U. of Minnesota	MB 1950	626 Aldrich Ave. N., Minneapolis, Minn.
MILLER, John Palmer	New York Med. Col.	MD 1950	2516 11th Ave. S., Minneapolis, Minn.
MYRE, Theodore Thomas	Northwestern U.	MB 1947 MD 1948	Mayo Clinic, Rochester, Minn.
NAKAMURA, James Yuzo	Col. of Med. Evang.	MD 1950	St. Luke's Hospital, St. Paul, Minn.
NELSON, Jr., Louis Alan	U. of Rochester	MD 1949	Miller Hospital, St. Paul, Minn.
OLIVE, Jr., John Thomas	St. Louis U.	MD 1948	Mayo Clinic, Rochester, Minn.
POWERS, Wilson Watkins	U. of Tennessee	MD 1945	Mayo Clinic, Rochester, Minn.
ROMNESS, Joseph Oliver	Northwestern U.	MB 1947 MD 1949	Mayo Clinic, Rochester, Minn.
ROSS, Willard Berg	Rush Med. Col. of U. of Chicago	MD 1941	722 W. Johnson St., Madison, Wis.
SCHWEINFURTH, Joseph David	Northwestern U.	MB 1949 MD 1950	Mayo Clinic, Rochester, Minn.
SIMON, Werner	U. of Berne, Switz.	MD 1937	Veterans Adm. Hospital, Minneapolis, Minn.
STREET, John Paul	U. of Minnesota	MB 1950	Ancker Hospital, St. Paul, Minn.
TANI, George Tadashi	U. of Minnesota	MB 1950	Ancker Hospital, St. Paul, Minn.
TOMPKINS, Robert George	Northwestern U.	MB 1947 MD 1949	Mayo Clinic, Rochester, Minn.
VALENTI, Dan Anino	U. of Illinois	MD 1943	318 LaBree Ave. N., Thief River Falls, Minn.
VISHER, John Sargent	Indiana U.	MD 1944	U. of Minn. Hospitals, Minneapolis, Minn.
WARNER, Homer Richards	U. of Utah	MD 1949	Veterans Adm. Hospital, Minneapolis, Minn.

Reciprocity Candidates

ABBOTT, Albert Riley	U. of Nebraska	MD 1949	Mayo Clinic, Rochester, Minn.
AKLAND, Leonard Rudolph	Southwestern Med. Col.	MD 1949	Veterans Hospital, Sioux Falls, S. D.
AYRES, Roland Wayne	Northwestern U.	MB 1943 MD 1943	Box 424, Alger, Ohio
BARRON, David Baer	U. of Minnesota	MB 1946 MD 1946	Veterans Adm. Hospital, Minneapolis Minn.
BEIRSTEIN, Samuel	Long Island Col. of Med.	MD 1929	506 Phys. & Surg. Bldg., Minneapoli Minn.
BOONE, Ervin Stanley	U. of Wisconsin	MD 1949	Veterans Adm. Hosp., Sioux Falls, S.
FINEGOLD, Mary Saunders	U. of Texas	MD 1949	5757 24th Ave. S., Minneapolis, Minn
FINEGOLD, Sydney Martin	U. of Texas	MD 1949	5757 24th Ave. S., Minneapolis, Minn
GREENFIELD, Irving	Temple U.	MD 1939	Mt. Sinai Hospital, Minneapolis, Mi
HANNA, Richard Ewert	Washington U., Mo.	MD 1949	U. of Minn. Hospitals, Minneapolis, Mi
KNUTSSON, Katherine Hegland	Vanderbilt U.	MD 1949	Mayo Clinic, Rochester, Minn.
LOGAN, James O.	Med. Col. of S. Car.	MD 1943	805 Jefferson, Wadena, Minn.
MAHON, Nathan Hall	Rush Med. Col. of U. of Chicago	MD 1942	4749 Grand Ave. S., Minneapolis, Mi
MILLETT, Douglas Keith	Northwestern U.	MB 1945 MD 1946	R. 3, Box 878, Mesa, Ariz.
REITEMEIER, Richard Joseph	Colorado U.	MD 1946	Mayo Clinic, Rochester, Minn.
SIKKEMA, Stella Madge Hazen	U. of Michigan	MD 1941	Stud. Health Serv., U. of Minnesota, Minneapolis, Minn.

Name	*School*		*Address*
SIMMONS, William Henry	Northwestern U.	MB 1949 MD 1950	Mayo Clinic, Rochester, Minn.
STORK, Robert Mulkey	Stanford U.	MD 1947	Mayo Clinic, Rochester, Minn.
WINTER, Jr., Lewis Stuart	U. of Nebraska	MD 1944	Veterans Adm. Hospital, Minneapolis, Minn.
WINTERRINGER, James R.	U. of Oklahoma	MD 1945	Mayo Clinic, Rochester, Minn.
ZEE, Urban H.	Creighton U.	MD 1937	U. of Minn. Med. Sch., Dept. Ophthal., Minneapolis, Minn.

National Board Candidates

AUFDERHEIDE, Arthur Carl	U. of Minnesota	MB 1946 MD 1946	2728 1st Ave. S., Minneapolis, Minn.
BENEDICT, Walter Hanford	U. of Michigan	MD 1946	Mayo Clinic, Rochester, Minn.
BRAASCH, John William	Harvard U.	MD 1946	Mayo Clinic, Rochester, Minn.
BRADY, Joan Veronica	Long Island Col. of Med.	MD 1949	Mayo Clinic, Rochester, Minn.
BREIDENBACH, Jr., Warren Conrad	Harvard U.	MD 1944	Veterans Adm. Hospital, Minneapolis, Minn.
BRINDLEY, Clyde Owens	Duke U.	MD 1943	Mayo Clinic, Rochester, Minn.
COONEY, James Francis	Yale U.	MD 1946	Mayo Clinic, Rochester, Minn.
ELLIOTT, Harold James	U. of Buffalo	MD 1938	508 Grove St., Austin, Minn.
FIFER, William Richard	Columbia U.	MD 1949	U. of Minn. Hospitals, Minneapolis, Minn.
FREEDMAN, Robert	New York Med. Col.	MD 1945	Mayo Clinic, Rochester, Minn.
FUTCH, William Dumas	Tulane U.	MD 1942	Mayo Clinic, Rochester, Minn.
HANSON, Stephen Martin	Marquette U.	MD 1948	1707 Main St., La Crosse, Wis.
JOHNSEN, David Strand	Geo. Washington U., D. C.	MD 1944	Mayo Clinic, Rochester, Minn.
KIELY, James Patrick	U. of Illinois	MD 1947	Mayo Clinic, Rochester, Minn.
KROBOTH, Jr., Frank James	Syracuse U.	MD 1946	Mayo Clinic, Rochester, Minn.
LISS, Henry Robert	Jefferson Med. Col.	MD 1948	Mayo Clinic, Rochester, Minn.
LOFTUS, Lawrence Robert	Duke U.	MD 1949	Mayo Clinic, Rochester, Minn.
LOWE, Charles Upton	Yale U.	MD 1945	U. of Minn. Hospitals, Minneapolis, Minn.
MANGER, William Muir	Columbia U.	MD 1946	Mayo Clinic, Rochester, Minn.
MARTIN, Franklin	McGill U., Can.	MD 1941	Mayo Clinic, Rochester, Minn.
McKAIG, Alan Manning	Syracuse U.	MD 1944	Red Lake Falls, Minn.
McMORRIS, Rex Ofal	U. of Nebraska	MD 1949	Mayo Clinic, Rochester, Minn.
MELLINS, Harry Zachary	Long Island Col. of Med.	MD 1944	46 Barton Ave. S.E., Minneapolis, Minn.
PRATT, George Francis	Harvard U.	MD 1948	Mayo Clinic, Rochester, Minn.
REISER, Milton Paul	U. of Michigan	MD 1948	U. of Minn. Hospitals, Minneapolis, Minn.
SYVERTON, Jerome Theda	Harvard U.	MD 1931	227 Millard Hall, U. of Minnesota, Minneapolis, Minn.
VERNON, Sidney	Long Island Col. of Med.	MD 1930	Two Harbors, Minn.
WATSON, Eleanor Jane	U. of Michigan	MD 1949	Mayo Clinic, Rochester, Minn.
WILLIAMS, Lawrence Burton	U. of Iowa	MD 1948	Mayo Clinic, Rochester, Minn.
ZHEUTLIN, Norman	Albany Med Col.	MD 1948	U. of Minn. Hospitals, Minneapolis, Minn.

QUESTIONS ON DRAFT LAW

Certain physicians, holding a degree of Bachelor of Medicine or of Doctor of Medicine, are presently liable for actual induction into the Army as recruits if they do not hold reserve commissions as medical officers in one of the armed services, whether in practice or not.

Non-veteran physicians, under twenty-six, were eligible for the draft before passage of the recent amendment to the Selective Service Act.

As a result of this amendment, physicians who were deferred from service and who thus continued their educations during World War II, whether at government expense or their own expense, and who have not served since then on active duty as medical officers for a period of twenty-one months, are subject to active duty as medical officers for twenty-one months.

Whether or not these physicians will be inducted into the Army as recruits or whether they will be deferred from service is entirely up to their local draft boards. Selective Service does not recommend deferment until completion of twelve months of internship.

These physicians, in other words, must apply for commissions as reserve officers or run the risk of induction as recruits. A physician who receives his actual induction notice may not then apply for a reserve commission and must enter service just as any other inductee. This does not apply to the notice to report for a pre-induction physical examination. Once he has been inducted into the Army as an enlisted man he may apply for a commission, but he will not be eligible for the extra $100 a month that is paid to all other medical officers.

None of the three military departments orders its reserve medical officers to active duty until they have completed at least twelve months of internship. In addition, reserve officers in their senior year of residency training will not be called to active duty until they complete their training, if at all possible.

It is rarely possible for a physician to apply for a reserve commission in the service of his choice.

Physicians now eligible for the draft who do not pass their physicals for commissions as reserve officers will not be inducted into the Army at a later time.

It is now possible to apply for a reserve commission without applying for active duty at the same time.

It is also possible now to apply for a reserve commission at the headquarters of military or naval districts, Army areas or numbered Air Forces.

Whether ordered to active duty as a medical officer or inducted for service as an enlisted man, the period of service is the same—twenty-one months.—Excerpt from AMA *Secretary's Letter.*

Minnesota Academy of Medicine

Meeting of May 10, 1950

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club, Saint Paul, on May 10, 1950.

Dinner was served at 7:00 o'clock and the meeting was called to order at 8:00 p.m. by the President Dr. William A. Hanson.

There were fifty-two members and one guest present.

Dr. Hammes read the following memorial to Dr. J. C. McKinley.

J. C. McKINLEY

1891-1950

Dr. J. C. McKinley was born in Duluth, Minnesota, on November 8, 1891. He died on January 3, 1950, after an illness of four and one-half years.

He was the son of John and Alice (Frizzell) McKinley. He received his preliminary and high school education in Duluth, Minneapolis and New York City. He was graduated from the University of Minnesota in 1915 with a B.S. degree; in 1917 with an M.A. degree in anatomy; in 1919 with an M.D. degree; and in 1921 with a Ph.D. degree in nervous and mental diseases. His thesis was "The Intraneural Plexus of Fasciculi and Fibers in the Sciatic Nerve." He was a Diplomate of the American Board of Psychiatry and Neurology and a member of the Board of Directors of the American Board of Psychiatry and Neurology from 1941 to 1945. He was secretary-treasurer of the Minnesota State Board of Examiners in the Basic Sciences from 1931 to 1945. He held the following appointments during his academic career: 1915-1917, student assistant in anatomy; 1917-1918, instructor in pathology; 1918-1921, teaching fellow in neuropsychiatry; 1921-1925, associate professor of neuropathology; 1925-1929, associate professor of neurology—all at the University of Minnesota. In 1928-1929 he received a John Simon Guggenheim Fellowship and studied in Europe at Breslau and Munich. He returned from Europe in 1929, and from that time until 1945 he held the position of professor of neuropsychiatry at the University of Minnesota. In 1932 he became acting head of the entire Department of Medicine at the University of Minnesota, a position which he held through 1943. From 1943 to 1945 he was head of the Department of Neuropsychiatry and director of the Psychopathic Unit at the University of Minnesota Hospitals. From June, 1946, until the time of his death he was professor emeritus of psychiatry and neurology at the University of Minnesota.

Dr. McKinley, during his academic career, held many important positions. He was chairman of the Committee on Nervous and Mental Diseases in the Minnesota State Medical Association from 1943 to 1945. He was president of the Minnesota Pathological Society from 1946 to 1947, and president of the Central Neuropsychiatric Association in 1939. Dr. McKinley was a member of many societies, among which might be listed: Minnesota Society of Psychiatry and Neurology, Central Clinical Research Club, Central Neuropsychiatric Association, Fellow of the American Medical Association, Society of Experimental Biology and Medicine, Fellow of the American Association for the Advancement of Science, and American Neurological Association. He was elected to the Minnesota Academy of Medicine on October 8, 1930, and the title of his thesis was "Familial Diffuse Sclerosis of the Brain."

Dr. McKinley, during his career, published a large number of scientific articles. He was editor of the *Outlines of Neuropsychiatry* and co-author with Dr. S. R. Hathaway of the Minnesota Multiphasic Personality Inventory. He was listed in *Who's Who in America, Who's Who in American Men of Science, Who's Important in Medicine, Biographical Encyclopedia of the World, Who's Who in American Education,* and *Who's Who in Minnesota.*

He was married to Doris I. Swedien on April 29, 1944. He also had four children by a previous marriage. Mrs. Leland Phelps, Mrs. George W. Miners, Mrs. Fernando Machado, and John Charnley McKinley.

Dr. McKinley was an outstanding scientist and teacher in his chosen field. He was beloved by his students and the entire medical faculty. He exerted tremendous influence in developing the Department of Neurology and Psychiatry at the University of Minnesota to its high standing at the present time. His guiding influence, his scientific ability, and his kind and co-operative spirit to his fellow workers will be remembered by and be helpful to all of us who were closely associated with him.

E. M. Hammes, M.D.

The scientific program followed.

Dr. John M. Culligan, of Saint Paul, read his inaugural thesis.

THE PRESENT STATUS OF SURGERY OF THE SPLEEN

JOHN M. CULLIGAN, M.D., and JOHN A. CULLIGAN, M.B.
Saint Paul, Minnesota

The spleen is a mysterious organ of the body, possessing manifold functions. The complexity of its cell structure in an organ composed principally of lymphoid tissue confuses its physiology and makes a study of its functions extremely difficult. As the result of this complex nature, conclusions have had to be reached mainly by a process of trial and error. The multiplicity of different kinds of blood dyscrasias is only limited by the number of different blood cells. Whereas years ago many types of dyscrasias were lumped together under such diagnoses as splenic anemia or leukemia, we are now breaking these anemias down into more accurate terms depending on fine distinctions of the one type of blood cell involved. As more precise diagnoses are made, more exact indications for splenectomy will be achieved. Whereas splenectomy helped some of the old cases of splenic anemia, it failed in others completely. This no doubt was due to the fact that splenic anemia was a "catch-all" diagnosis. With the breakdown of this "catch-all" we learn which specific blood cell dyscrasias respond to splenectomy and which ones do not. Splenectomy has now been tried for every kind of anemia and splenomegaly and in sufficient numbers to arrive at some definite conclusions as to when it is indicated.

Among the conditions for which surgery of the spleen has been tried are the following: infections of the spleen from septicemia, pernicious anemia, myelogenous and lymphatic leukemia, Hodgkin's disease, aplastic anemia, polycythemia, luetic spleens, tuberculous spleens, splenomegaly due to malaria, splenic anemia, Banti's disease, sarcoidosis, trauma of the spleen, hemolytic icterus, congenital or acquired, thrombocytopenic purpura, splenic neutropenia, primary splenic panhematocytopenia, Felty's syndrome, thrombosis or anomalous obstruction of the portal vein with portal hypertension, cysts of the spleen, parasitic invasion of the spleen, abscesses, Gaucher's disease and ptosis. In many of the above-listed diseases, surgery of the spleen has been abandoned because of poor results or because some better treatmnet has been developed.

The physiology of the spleen is complex and must be studied from two angles, the normal and the abnormal. The spleen is primarily an organ composed of lymphoid and reticulo-endothelial cells and as such possesses all the normal functions peculiar to lymphoid tissue. Normally it acts as a reservoir for red blood cells, and helps destroy old red blood cells by phagocytosis and so forms bilirubin. It stores hemosiderin, phagocytes bacteria and foreign body particles. It produces lymphocytes and monocytes, and in embryonic life and in certain types of anemia in adults it produces red blood cells and leukocytes. When abnormal physiology in the spleen occurs, diseases result which arouse the interest of clinicians and which may necessitate surgical intervention. The function of increasing the fragility of the red blood cells is one. This increased fragility leads to the development of hemolytic icterus due to the rapid destruction of the red blood cells and the accumulation of bilirubin in the blood. The abnormal physiology of inhibitory function on the bone marrow reduces the platelets to the point that thrombocytopenic purpura results. If the inhibition of granulocytes occurs, panhematocytopenia or splenic neutropenia result. At times all of these conditions may be present simultaneously, or any combinations of the above. In spite of the manifold and complex functions of the spleen, it is remarkable that so little change results generally in the body from removal of a normally functioning organ. Aside from some increase in erythrocytes, leukocytes and blood platelets, there seems to be little or no effect on the body generally. This is no doubt due to the fact that there is still an abundance of lymphoid and reticulo-endothelial tissue elsewhere in the body. As these tissues assume the functions of the spleen, the increase in the blood components returns to normal. Removal, however, of an abnormally functioning spleen gives almost startling curative effects in cases carefully selected with certain characteristic changes in the blood or other organs. The close co-operation between the internist and the surgeon is most essential, and it is only by this means that splenic syndromes amenable to surgery can be sifted. A trained hematologist with ability to obtain accurate bone marrow studies is absolutely essential in arriving at the fine differential diagnoses necessary to obtain good surgical results.

The technique of splenectomy is not up for discussion in this paper, but we wish to make just one or two remarks relative to it. Either a left upper rectus or transverse incision may be used. Delivery of the spleen through this wound should be accomplished before the pedicle is clamped. This may be best accomplished by incising the parietal peritoneum just lateral to the spleen. A search for accessory spleens should always be made as they are very common. In cases where gross splenomegaly is present, preoperative shrinkage by x-ray therapy may facilitate its removal.

I have divided the cases under consideration in this paper into four groups.

1. Those in which splenectomy now offers nothing or is contraindicated due to the fact that failure has resulted from removal in the past or some other type of treatment has given better results.
2. Conditions in which splenectomy may palliate though it may not be regarded as a cure.
3. Conditions in which splenectomy is definitely indicated and give on the whole excellent results.
4. Rare conditions with which we have had no experience but are enumerated here so that they may be considered and evaluated as experimental to complete the record.

The first group includes the following conditions:

Infections of the spleen resulting from generalized septicemia or endocarditis have never responded to any surgical procedure. The sulfonamides and the antibiotics have replaced surgery.

Pernicious anemia was at one time thought to be influenced favorably by splenectomy but the discovery of liver therapy proved so much more efficacious that it naturally has superceded all operative measures.

Myelogenous and lymphatic leukemia never responded in any satisfactory manner to surgical intervention.

Hodgkin's disease responds better at least temporarily to Roentgen therapy and aplastic anemia has never given any gratifying results.

Polycythemia was once thought to be partially benefited but further study and observations has led to the conclusion that surgery on the spleen offers little or nothing. In fact in this condition it is now the consensus of opinion that surgery is contraindicated.

In the second group are cases which may receive some palliation from splenectomy. Certain types of infections of the spleen, such as luetic gumma, tuberculosis and even malaria, may produce such enlargement of the spleen that removal makes the patient much more comfortable though no change in the course of the disease may be obtained. Splenectomy therefore may be indicated when the spleen is so large or painful as to be annoying to the patient.

Lymphosarcoma may involve the spleen along with other abdominal or retroperitoneal organs. Removal of the spleen and as much as possible of the rest of the involved tissue may give palliation. This should be augmented with deep roentgen therapy.

A case in point is that of K. T., a twenty-three-year-old, single man seen in April, 1948, who first noted symptoms of pain in the left upper quadrant of his abdomen in the fall of 1944. This recurred in the spring of 1947 and a mass developed in the left upper quadrant of his abdomen. On April 10, 1948, splenectomy and removal of much other sarcomatous tissue was performed. His recovery was good, and following this, roentgen therapy shrank the mass considerably. He remained fairly well until December 5, 1948, when he died. Postmortem examination revealed death was due to a large intra-abdominal hemorrhage.

Sarcoidosis of the spleen is rare and is usually associated with evidence of sarcoid disease elsewhere in the body. This peculiar hobnailed spleen may give the patient extreme pain. The organ may increase in size until it weighs 1500 to 2000 grams. Whereas splenectomy may not effect the course of the disease, the relief of the pain is enough to warrant operation.

An illustrative case is M. C., a thirty-six-year-old, single woman who suffered extremely severe left upper quadrant pain associated with extreme spells of vomiting, lassitude, weakness and joint pains and a 33 pound weight loss in the preceding year. Examination revealed a large hard spleen. Exploration disclosed a hobnailed spleen which was removed. It weighed 2.5 pounds and the pathological report by Dr. John Noble was sarcoidosis of the spleen. She has been much improved since her operation, but once or twice a year still has attacks of colicky left upper quadrant pain. There is no evidence of progression of sarcoidosis elsewhere in the body.

Splenic anemia has been a catch-all diagnosis into which many obscure blood dyscrasias have been placed and some of which have been benefited by splenectomy. In more recent years certain rather distinct clinical syndromes such as panhematocytopenia and splenic neutropenia have been sifted out and will be considered later under group three. However, we think it is justifiable to advocate splenectomy for primary splenic anemia which does not fall into definite classifications because sometimes very startling cures result and no other treatment has been advanced which is better.

Banti's disease with its splenomegaly, fibrosis or cirrhosis of the liver and portal thrombosis presents pictures of such a varied nature that it is difficult to draw conclusions about the disease in its entirety. Treatment must be guided by the stage of the disease. We feel that we can conclude that in the early stages of Banti's disease before changes have taken place in the liver or the portal vein, splenectomy is beneficial. It certainly has a palliative effect and some observers believe that in real early stages it is curative. After the disease is well established, palliation is all that can be hoped for. In the late stages where collateral circulation is established, splenectomy carries a very high mortality from hemorrhage and shock but it may even be harmful because some of the collateral circulation may be destroyed. Because of these considerations splenectomy may be even contraindicated in this disease.

The case of R. K. was that of a twenty-year-old boy who had suffered from splenomegaly since the age of fourteen years. During these six years he suffered from two episodes of gastrointestinal hemorrhage probably arising from esophageal varices. The spleen had enlarged so that it extended low into the left lower quadrant of the abdomen. Splenectomy was performed in October, 1946, and a spleen weighing 1310 grams removed. The pathological report was Banti's disease. The patient received definite palliation from his symptoms but has had one spell of gastrointestinal hemorrhage since surgery. Otherwise he feels well three and one-half years after his operation. Perhaps if this spleen had been removed four or five years earlier we might have had a complete cure.

The third group contains those cases in which splenectomy is highly beneficial or curative:

Trauma of the spleen results usually from three causes: (1) injury caused by heavy dull or crushing blows to the abdomen, (2) perforating wounds, and (3) injury at a surgical procedure. The first type results most frequently from automobile accidents, sliding and bobsledding in which the injured strikes a firmly fixed object such as a tree, and occasionally in falls from any type of perch. The symptoms are generalized abdominal pain usually more marked on the left side, sometimes referred downward or to the left shoulder (Kehr's sign), pallor, occasionally vomiting, anxious appearance, sweating, thoracic breathing, splinting of the abdomen. Physical findings usually show evidence of shock, rapid thready pulse, clammy skin, abdominal rigidity, and rebound tenderness more marked on the left side. The skin seems to take on a yellowish tint, the blood pressure findings are usually low to normal, and at times there is fixed dullness in the left upper quadrant (Ballance's sign). This was present in two of our nineteen cases of ruptured spleen. But was probably not looked for routinely. With such a picture, immediate exploration is indicated. One complication of rupture of the spleen which must always be remembered is delayed hemorrhage. A history of abdominal trauma is obtained but the patient does not have the shock symptoms of one with a frank rupture and intra-abdominal hemorrhage. No indication for explorations is present. However, any time up to ten to fourteen days later, sudden shock symptoms appear and the typical picture of a ruptured spleen sets in. This is caused by a tear in the splenic pulp which is loosely sealed over and the capsule holds the hemorrhage in abeyance until it reruptures later as the clot in the spleen increases in size. This was present in two of our nineteen cases.

A case in point is B. T., a thirteen-year-old girl who was hit just below the left costal margin by the handlebar of a bicycle. She had some pain in the left flank with nausea at the time, but was able to attend school the next day and for the rest of the week. Pain was present in the left side only upon twisting her body or breathing deeply. During the night of the fifth day following the accident she was awakened by a severe pain in her left side, constant and worse upon breathing. She was brought to the hospital where she was found to have considerable tenderness in the left upper quadrant and left flank, with rigidity of the entire abdomen, most pronounced in the left upper quadrant. There was a moderate amount of distention. The hemoglobin was 48 per cent and shortly later 42 per cent. She was operated upon and a subcapsular hemorrhage and hematoma found with free bleeding into the peritoneal cavity. Recovery was uneventful.

Another case is that of S. L., a young man, aged twenty, who, while playing basketball ten days prior to admission, was hit in the left side of the abdomen by the head of another player. For the next five days he had considerable malaise, tenderness around his umbilicus, and pain upon respiration. On the sixth day he felt fairly well and went to work, but on the following two days had a recurrence of the pain which necessitated his staying in bed. Again on the ninth day he returned to work but while there developed profuse sweating, dizziness, and nausea and vomiting. He was brought to the hospital where examination of the abdomen showed diffuse tenderness with moderate rigidity. Blood pressure was 95/54. The hemoglobin was 68 per cent, red blood count 3,520,000, and the white blood count 13,200. At operation the spleen was ruptured and markedly enlarged. Pathological examination did not disclose the reason for the splenomegaly, but the pathologists suggested a blood dyscrasia or some such severe infection as bacterial endocarditis. Blood studies and cultures, stool cultures, and agglutination tests were all negative. After a very stormy course during which he developed bronchopneumonia with pleural effusion, subphrenic abscess, and evisceration of his wound, he died upon the thirty-sixth postoperative day. Autopsy showed areas of ulceration corresponding to the location of Peyer's patches, and the microscopic picture was compatible with a diagnosis of typhoid fever.

One of the difficulties in arriving at a diagnosis of rupture of the spleen is that frequently extensive injuries are present eleswhere which mask the symptoms. That is, the patient may be unconscious from concussion or skull fracture, he may be intoxicated, he may have a crushing injury to his chest with fractured ribs, pneumothorax or hematothorax, he may have fractured arms or legs, he may have rupture or perforation of other abdominal organs, or he may have rupture or perforation of the left kidney with hematuria. Any combination of the above listed injuries may be present and will have to be treated at the same time. However, as a general rule the other injuries may be more safely temporized with than the spleen injury because an untreated ruptured spleen is always fatal, whereas treatment of many of the other injuries may be delayed. Rupture of the spleen in extensive injuries should always be considered. It has often been referred to as the organ of shock in abdominal injuries, and where shock is present, rupture of the spleen and other abdominal organs should be considered. In our series of cases we had to remove the spleen and left kidney on four patients, two for simultaneous rupture of the spleen and left kidney due to the dull blows and twice for perforating bullet wounds which punctured both the spleen and kidney. This brings us to the second type of injury to the spleen, namely, perforating wound. These usually result from gunshot and stab wounds. The dictum of immediate exploration holds for this type of injury along with repairing any other type of injury which is present.

There was the case of T. O., a twenty-two-year-old man, with suicidal intent, placed the butt of a shotgun on the floor, leaned over the muzzle and reached down and pulled the trigger. The shot tore away the left upper quadrant of his abdomen and lower ribs and diaphragm. He was brought to the hospital gasping for breath because of a pneumothorax. The bowel was eviscerated. The patient was in shock. Supportive measures were instituted. Through the gaping wound the diaphragm was sutured to the lateral chest wall in a position higher than its normal attachment with through-and-through catgut sutures. Breathing immediately improved. The shredded ends of the tenth and eleventh ribs were removed. A splenectomy was performed. More than forty perforations of the large and small bowel were closed. The left kidney was not removed though shot could be felt in the capsule. A large retroperitoneal hemorrhage had occurred. The wound was closed as well as possible. For a time it seemed as though the patient might recover, but death occurred on the sixteenth postoperative day. The cause of death reported at postmortem was local peritonitis, subdiaphragmatic abscess, left empyema, abscess of left lung, multiple abscesses of left kidney. It is interesting to speculate on how the defect in the abdominal wall could have been repaired had the patient recovered.

Another case is that of H. I., a nineteen-year-old clerk in a drug store who was held up and shot in the abdomen by a bandit. The patient was in extreme shock. Supportive measures were instituted. The bullet had entered the abdomen in the left upper quadrant and lodged in the lumbar muscles. On exploration through a left rectus incision, it was found that the bullet had perforated the spleen, left kidney and transverse mesocolon. The spleen and kidney were removed and the rent in the mesocolon repaired. After three weeks the bullet was removed from the lumbar muscles. Convalescence was uneventful.

Thromocytopenic purpura is a disease which responds to splenectomy. Characterized by excessive bleeding beneath the skin, from the nose, from the bowel, from the genito-urinary tract, or from any skin laceration or needle puncture, these patients frequently become very anemic and the hemorrhages are at times uncontrollable. Before treatment by splenectomy the disease was at times fatal. The diagnosis is made from the history and findings as noted above and the presence of a low blood platelet count. This count may have dropped from a normal of 200,000 plus to 35,000 or even as low as 2000. As soon as the diagnosis is made, splenectomy should be performed, as treatment by transfusion or intramuscular injections of blood only gives at best only temporary relief.

The case of P. T. was a child of eighteen months of age, whose parents gave the history of a sudden generalized ecchymosis which continued for four days but cleared spontaneously in ten days under treatment with calcium. A second episode occurred at the age of two years and four months, which cleared up following the injection of coagulose, but a large hematoma occurred at the injection site. Her platelet count was 75,000. She cleared again and had no recurrence until the age of six years when another attack occurred. This was in September and October of 1927. During this attack seventeen platelet counts were done. The highest count was 33,000 and the lowest was 10,000. On October 18, 1927, splenectomy was performed. All bleeding ceased, and at 3:00 p.m. on the day of surgery the platelet count rose to 38,000. The patient was discharged October 31, 1927, considerably improved. She has had no recurrence since and is now twenty-nine years old, and in November, 1949, her platelet count was 175,000.

There is also the case of Mrs. M. W., who was first seen February 6, 1941, at the age of forty-seven with typical petechial hemorrhages and melena. Platelet counts taken at intervals for the next seven months varied from 215,000 down to as low as 2000. It is significant that the hemorrhages and the low platelet counts coincided. On September 27, 1941, splenectomy was performed. Convalescence was uneventful and on November 17, 1941, two months after operation, her platelet count was 250,000. However her platelets have not always remained up and have been as low as 7000 since her operation, but in spite of this she has never had a recurrence of hemorrhage. We suppose an accessory spleen could account for this.

Congenital hemolytic jaundice is another disease which responds to splenectomy. This condition frequently occurs in several members of a family and is characterized by mild jaundice and secondary anemia. Symptoms are usually due to the anemia. Enlargement of the spleen occurs early, and gallstones are a frequent complication. The diagnosis is confirmed by the presence of increased fragility of the red blood cells in hypotonic salt solution. On the other hand acquired hemolytic jaundice usually does not respond to splenectomy and usually does not show increased fragility of the red blood cells. Treatment in the acquired type should be directed at the underlying cause of the jaundice. If this is removed, the jaundice will clear up. In true congenital hemolytic jaundice the response to splenectomy is spectacular when the red-blood-cell-destroying spleen is removed. The increase in the red blood count is immediate almost before the operation is completed. Operation should be performed immediately even in the face of the poor condition of the patient as it offers the only cure.

The case of J. C. was a twenty-seven-year-old-boy admitted to the hospital January 17, 1942, complaining of weakness and a yellow pallor of his skin. He was extremely ill. His hemoglobin was 22 per cent, red blood count 986,000, white blood count 11,450. His red blood cells showed increased fragility to hypotonic salt solution. His spleen was palpable. Splenectomy was performed January 18, 1942, in spite of his poor condition. Citrated blood was given during the operation. Two hours after the operation his red blood count had risen to 1,750,000 and his hemoglobin to 38 per cent. Part of this rise was no doubt due to his transfusion but if the spleen had not been removed his transfused blood would not have been maintained. He left the hospital twelve days following operation, and in May, four months later, his hemoglobin was 85 per cent and his red blood count was 4,230,000. He has remained well since.

Panhematocytopenia and splenic neutropenia are primary hypersplenic conditions that have been sifted out of the catch-all of splenic anemia. In fact the differentiation between panhemotocytopenia and splenic neutropenia is so confusing that they are considered at times as varying degrees of the same disease. Bone marrow studies are essential as a prognostic factor in determining the advisability of splenectomy. Where the laboratory studies of the bone marrow show a myeloid hyperplasia and a normal or increased number of granulocytes which do not reach the blood and also a destruction of the erythrocytes, and at times a low platelet count, splenectomy is indicated and gives a good result.

The case of J. N. B. was that of a seventy-five-year-old man who in March, 1938, was found to have an abnormal blood count with his hemoglobin 9.8 grams, red blood count 2,500,000 and a white blood count of 2,200 of which 767 were granulocytes. Repeated counts remained approximately the same and transfusions were the only means by which his hemoglobin could be maintained. Another count showed his hemoglobin to be 6.8 grams, red blood count 1,800,000 and white blood count 1,700. His platelet count was 160,000. His spleen was palpable. Bone marrow studies showed myeloid hyperplasia, increased erythropoiesis. A diagnosis of panhematocytopenia was made on a hypersplenism basis.

His spleen was removed on October 28, 1949. One month later his hemoglobin was 11.9 grams, his red blood count 4,390,000, and his white blood count 4,200 with 47 per cent granulocytes. His platelet count was 242,000.

Felty's syndrome is another splenic condition which has characteristics of splenic neutropenia and panhematocytopenia, secondary anemia and a low platelet count with splenomegaly. However, associated with these findings are painful joints due to arthritis deformans, skin pigmentation and generalized adenopathy. At times an associated thrombocytopenic purpura may be present. We have never operated upon a patient with this syndrome but have had one under observation since November, 1949. At no time did her complaints seem to justify operation.

The case of Mrs. J. P. D. was that of a forty-eight-year-old, white woman who was admitted to the hospital on November 8, 1949, complaining of nausea, vomiting and abdominal pain. She had been in her usual state of health until November 6, 1949, when she first noticed crampy abdominal pain following a meal of sauerkraut and spareribs. During the interval between onset of pain and admission she had several bouts of emesis. Bowels moved normally twice the day before admission. She had had a previous episode in August, 1949, which cleared up without medical attention. Past history revealed that she had had rheumatoid arthritis with severe deformities of hands and arms for approximately twenty years, a myomectomy and uterine suspension in 1934, and a subtotal hysterectomy in 1943. Examination on admission revealed a white woman in considerable pain. Her hands showed typical rheumatoid deformities and she was unable to extend her elbows. Her tongue was smooth, red and dry. The left lobe of her thyroid was somewhat enlarged. The abdomen was mildly distended and there was voluntary muscle guarding present. Tenderness was present in both lower quadrants. Bowel sounds were active but not high pitched. The spleen could not be palpated but x-ray examination revealed splenomegaly and small bowel distention. Blood pressure was 130/80, pulse rate 100, temperature 100.2. Blood counts on ten successive days revealed an average hemoglobin of 11 grams. Red blood counts averaged 3,500,000 and white blood counts averaged 3,000, the lowest being 2,200. There was an increase in the granulocytes, averaging about 80. Her platelet count was 120,000. Fragility test was normal. Bone marrow studies showed a myeloid hyperplasia. Her abdominal symptoms disappeared under intravenous medication and enemata and nasal suction. This patient, we believe, has a typical mild Felty's syndrome, and splenectomy is being considered if she has any recurrence of her abdominal complaints or if her blood picture changes progress. We do not feel, however, that it will affect her rheumatoid arthritis.

There are several other conditions associated with diseases of or enlargement of the spleen which respond to surgical treatment better than to medical. We mention them here so as to complete the record of surgical conditions of the spleen even though we have had no personal experience in cases of this kind. They, if encountered, should be given surgical consideration. Cole, Walter and Limarzi mention some of them.

Thrombosis or anomalous obstruction of the splenic vein may be reason for splenectomy. We appreciate that some of these cases may be early, ill-defined cases of Banti's disease. The diagnosis is made by the finding of splenomegaly, secondary anemia, leukopenia and thrombopenia. This condition no doubt was also included under the old splenic anemia group at one time. Hemorrhage from the gastrointestinal tract may be present, arising from esophageal varices which can at times be identified in roentgenograms. The consensus of opinion is that where obstruction of the vein exists primarily and no other complicating factors are present, splenectomy will cure. This no doubt accounts for some cures in so-called early Banti's disease where no liver damage or complications are present. The other group where the portal block is intrahepatic, such as in cirrhosis of the liver or advanced Banti's disease, no result can be obtained. The resulting portal hypertension has given rise to numerous procedures for its relief. Splenectomy will relieve or cure in early cases where the pathology is primarily an extrahepatic block in the portal vein itself. Nature tries to establish collateral circulation by dilating veins of the falciform ligaments, the veins of the cardia connecting with azygos and diaphragmatic veins, the hemorrhoidal veins and through veins of the retroperitoneal glands and appendages. Procedures other than splenectomy have been tried, some with some success at times. Talma devised anastomoses of various intra-abdominal organs, principally the omentum to the abdominal wall and between the liver, spleen and diaphragm and the anterior abdominal wall. Anastomosis of the superior mesenteric vein to the caval circulation was tried by Bogaras. Learmonth anastomosed the splenic vein to the left renal vein after splenectomy and nephrectomy with indifferent success and a surgical mortality of 33 per cent in fifteen cases. At any rate he has now discontinued the procedure. Ligation of some gastric arteries has been tried. Gastric resection has been tried by Wagensteen with a 50 per cent operative mortality and uncertain results.

So we think it may be concluded that good results will be obtained in early extrahepatic portal obstruction with portal hypertension by splenectomy. Uncertain results in late cases is the rule where blood diverting operations of any type are tried, and these procedures carry a high operative mortality. We have had no personal experience with any other surgical procedure other than splenectomy for this condition.

Cysts of the spleen, abscesses or parasitic invasion of the organ, Gaucher's disease and even simple ptosis may at times occur which, if giving symptoms, should be treated by splenectomy. All of these conditions are rare.

Conclusions

1. We have attempted to summarize the conditions for which splenectomy has been tried and found worthless or for which some other procedure has been developed which has been proven superior.
2. We have summarized the conditions which splenectomy palliates.
3. We have presented the conditions in which splenectomy cures or gives good results.

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Minneapolis Surgical Society

Meeting of April 6, 1950

The President, Ernest R. Anderson, M.D., in the Chair

VAGOTOMY IN THE TREATMENT OF PEPTIC ULCER

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TEN to 20 per cent of patients with peptic ulcer are referred to the surgeon for the treatment of some complication of the ulcer. The complications for which surgical treatment is sought are: (1) perforation, (2) hemorrhage, (3) pyloric stenosis, (4) intractible symptoms. In general, the choice of operation lies between gastric resection and vagotomy for these cases. It is not my intention to discuss the pros and cons of the two operations, but to present the results of a group of vagotomies done at the University of Chicago.

The discussion will be limited to the treatment of duodenal ulcer, for when operation is undertaken for gastric ulcer, there are definite advantages to gastric resection. The good results from vagotomy in the treatment of jejunal ulcer are recognized by even the most severe critics of the procedure; thus there is little indication for including this category in the discussion.

There are three groups of patients in which I feel vagotomy has distinct advantage over gastric resection; these are herein enumerated. First, the patient who has difficulty maintaining his normal weight, or the asthenic patient, is an excellent candidate for vagotomy inasmuch as following vagotomy such a patient is better able to maintain his weight or to gain weight than after gastric resection. Weight record studies in both groups of pations have borne out this contention quite consistently. Second, the patient with a severely scarred duodenum can be treated with a lower mortality and morbidity by vagotomy than by gastric resection. Admittedly, the antral exclusion operation may be done in these cases, but the mortality and morbidity in the group is significantly greater than with vagotomy. This is true, in general, of the difference in the morbidity and mortality between gastric resection and vagotomy, as will be discussed later. Third, the patient who is a problem insofar as his personality make-up is concerned tends to develop rather severe symptoms following operation. This patient may be considered for vagotomy and gastroenterostomy as he is less likely to develop severe disturbances after this operation than after gastrectomy.

During the past few years there has been considerable discussion as to the detrimental effects produced upon the other abdominal viscera by vagotomy, but all such fears are unfounded. Thorough study of the viscera of three patients who died many months following vagotomy have failed to reveal any microscopic evidence of change in the duodenum, jejunum, ileum, colon, kidneys, liver, pancreas or adrenals. These organs were considered to be completely normal by microscopic examination. Furthermore, when gastrectomy is carried out, there is effected a vagotomy of varying degree. Following total gastrectomy or esophagogastrectomy or esophagectomy there results a complete vagotomy. Certainly no one has demonstrated any concern as to the effect of these operations on the abdominal viscera.

The physiology of vagotomy is well understood at the present time. Suffice it to say that there is a decrease of total volume of gastric secretion, a decrease of the acid output of the stomach, and a decrease of the tonus and motility of the stomach.

As first described by Dragstedt,[1] the operation was done transthoracically, but at the present time the majority of the operations are being done transabdominally. Not only does the abdominal route permit examination of the ulcer area and other abdominal viscera, but it allows for more complete division of the vagus nerves. At the same time a gastroenterostomy may be done to facilitate drainage of the stomach. At least 20 to 25 per cent of patients having vagotomy require accessory drainage of the stomach either at the time of the vagotomy or at a later date. At the present time it is my feeling that gastroenterostomy should be done in all cases of vagotomy, and I believe that the results in this group of patients will bear out this contention.

The technique of operation employed is to enter the abdominal cavity through a high left paramedian incision. The viscera are explored, and then the triangular ligament of the left lobe of the liver is exposed by the surgeon and cut by his assistant so that the left lobe can be retracted well to the right. The left lobe is then held out of the field with a stockinette covered Deaver or Harrington retractor. The esophagus is identified by palpation, and an incision is made in the peritoneum across the lower portion of the esophagus. This incision is enlarged bluntly, and the index finger is inserted into the mediastinum behind the esophagus. Gradually the exposure is increased so that it is possible to insert the index and middle fingers behind the esophagus and all adventitious tissue is brought toward the esophagus with the fingers while working higher and higher into the mediastinum. Finally, it is possible to bring at least three inches of esophagus down out of the mediastinum. The vagus nerves are felt as tight strands, resembling violin strings, along the esophagus. The nerves are picked up as high as possible and dissected distally, then clamped and ligated as high as possible. A segment of nerve an inch or two in length is then removed and the distal transected ends are ligated. Meticulous search is made for additional vagus fibers along the esophagus and also in the mediastinum.

TABLE I. CLASSIFICATION OF RESULTS

Good—healing of the ulcer, patient asymptomatic, return to previous occupation or its equivalent.
Fair—healing of ulcer, but distressing symptoms such as late chest pain, bowel distress, mild obstructive symptoms, or mild diarrhea.
Poor—recurrence of ulcer, severe obstructive symptoms, disabling side effects such as dumping or protracted diarrhea; death.

When one is satisfied that he has divided all possible fibers, the opening in the peritoneum is carefully closed with interrupted sutures and the left lobe of the liver is fixed in place by suturing the divided triangular ligament. At this point a small gastroenterostomy is made between the posterior wall of the stomach and the first part of the jejunum. This is a retrocolic anastomosis and should measure 2.5 to 3 centimeters in length. A small gastroenterostomy stoma is advisable for reducing the likelihood of dumping symptoms.

The postoperative management of the patient following vagotomy is important. Constant gastric suction is maintained for three or four days; then the tube is removed, and during the first day without the tube the patient is allowed 30 c.c. of water every hour. He is aspirated at night to determine the presence of retention, if any. In the absence of retention the patient is allowed 60 c.c. of water an hour the second day after withdrawal of the tube and is again aspirated at night. The third and fourth days clear liquids are given ad lib. The fifth and sixth days six feedings of full liquid are given and the stomach is aspirated once at night to determine retention. The seventh and eighth day six feedings of soft diet are given. The ninth day clear liquids are given and a twelve-hour secretion test is run at night, and in the morning before removal of the tube, an insulin gastric secretion test is carried out. The patient is discharged on the tenth day and instructed that he should not allow his stomach to become distended. His diet is restricted to readily digestible foods for three weeks after discharge. Another insulin gastric test is done three months after discharge from the hospital.

The clinical results of the operation are classified according to the outline in Table I.

An ulcer was not classified as healed unless there was roentgenographic evidence of healing and freedom from ulcer symptoms. Table II classifies the results according to the type of operation performed.

There is definite superiority of the results in the group treated by vagotomy and gastroenterostomy over the other groups.

In the transthoracic group those patients considered as fair results were patients whose ulcers healed, but who continued to have mild symptoms of delayed emptying of the stomach. These symptoms were distressing, but not disabling. The poor results in this group include one death, six cases of recurrent ulcer, and six cases of obstruction severe enough to warrant operation. Five patients had gastroenterostomy with good result, one with fair result.

In the group of patients operated upon via the abdominal route who had vagotomy without any adjunct operation, the fair results are listed as two cases with diarrhea, one case with what is described as "dumping," and sixteen cases with mild obstructive symptoms. Those classified as poor results include three deaths, eleven recurrent ulcers and ten patients who underwent subsequent gastroenterostomy for obstruction (eight with good results and two with fair results), and one case with severe obstruction who refused gastroenterostomy for a long time and later had partial gastrectomy elsewhere.

TABLE II. RESULTS IN 465 VAGOTOMIES FOR DUODENAL ULCER

Transthoracic vagotomy—57	
Good— 37—65%	
Fair— 7—12.2%	Mortality—1—(1.7%)
Poor— 13—22.8%	
Abdominal vagotomy—148	
Good—104—70.2%	
Fair— 19—12.8%	Mortality—3—(2.0%)
Poor— 25—17.0%	
Abdominal vagotomy and gastroenterostomy—260	
Good—239—91.9%	
Fair— 11— 4.2%	Mortality—1—(0.38%)
Poor— 10— 3.9%	

Finally, in the group having vagotomy via the abdominal route and gastroenterostomy, there were eleven fair results (4.2 per cent), with four patients having "dumping," one being a drug addict, four having bowel distress, and two patients having mild diarrhea. In the poor result category there was one death, one Mann-Williamson ulcer; five recurrences of ulcer—one had second operation with lysis of adhesions and subsequently a fair result. One patient was re-explored for persistent symptoms and a duodenal diverticulum was removed with good results. One patient subsequently had hemorrhage of undetermined origin.

The statistics in this group of patients are self-explanatory, and it should be noted that the over-all mortality rate was 1.3 per cent. In the group of patients with vagotomy and gastroenterostomy the mortality rate was 0.38 per cent in a group of 260 patients. The results with this operation in the treatment of duodenal ulcer have been satisfactory; the mortality and morbidity has been low, and the clinical course of the patients such as to justify its continued use.

Summary

1. A group of 465 patients treated for duodenal ulcer by vagotomy alone or in conjunction with gastroenterostomy is presented.

2. A comparison between the results of operation in three different categories is made. The categories represent the type of operation, i.e., transthoracic, transabdominal, or transabdominal with gastroenterostomy.

3. The superiority of the results in the group with abdominal vagotomy and gastroenterostomy is significant.

4. The results suggest that this operation has a definite place in the treatment of duodenal ulcer.

Reference

1. Gragstedt, L. R., and Owens, F. M., Jr.: Supra-diaphragmatic section of vagus nerves in treatment of duodenal ulcer. Proc. Soc. Exper. Biol. & Med., 53:152-154, 1943.

Dr. Carter W. Howell, Minneapolis, presented a paper entitled "Observations on 'The Common Channel Theory' in Pancreatitis."

Dr. Lyle J. Hay, Minneapolis, presented a paper entitled "Polyethylene Wrapping of Abdominal Aneurysm."

WILLIAM H. RUCKER, M.D., *Recorder*

✦ Reports and Announcements ✦

AMERICAN COLLEGE OF CHEST PHYSICIANS

A postgraduate course in diseases of the chest, sponsored by the Council on Postgraduate Medical Education and the Southern Chapter of the American College of Chest Physicians, will be held at Vanderbilt University School of Medicine, Nashville, Tennessee, January 22 to 27. The fee for the course is $50. Further information can be obtained from the American College of Chest Physicians, 500 North Dearborn Street, Chicago 10, Illinois.

AMERICAN COLLEGE OF SURGEONS SECTIONAL MEETING

A cordial invitation is extended to physicians and surgeons in the State of Minnesota to attend a three-day sectional meeting of the American College of Surgeons in St. Louis on January 22, 23 and 24. The Statler Hotel will be headquarters for the meeting and requests for hotel accommodations should be directed to the Statler Hotel in St. Louis.

The program for this meeting will include new surgical motion pictures, a special program on trauma, a cancer symposium, and panels or papers on vascular surgery, chest injuries, fractures about the ankle joint, hematuria following trauma, neck surgery, osteomyelitis, ulcerative colitis, cancer of the stomach, and emergencies arising during operation. The first two days of the program will be presented at the headquarters hotel, and on January 24 the hospitals in St. Louis will offer a full day of surgical clinics for those in attendance at the meeting.

A $5 registration fee will be required, except from Fellows and members of the Junior and Senior Candidate Groups of the College, and interns and residents.

Additional information may be obtained by writing to Dr. James Barrett Brown, American College of Surgeons, 40 E. Erie Street, Chicago 11, Illinois.

AMERICAN DERMATOLOGICAL ASSOCIATION PRIZE ESSAY CONTEST

The American Dermatological Association is offering a prize of $300 for the best essay submitted of original work, not previously published, relative to some fundamental aspect of dermatology or syphilology. The purpose of this contest is to stimulate younger investigators to original work in these fields.

Manuscripts typed in English with double spacing as for publications, together with illustrations, charts and tables, are to be submitted in triplicate not later than February 1, and should be sent to Dr. Louis A. Brunsting, Secretary, American Dermatological Association, 102-110 Second Avenue, Southwest, Rochester, Minnesota.

Competition in this prize contest is open to scientists generally; not necessarily physicians.

The award will be made by a committee of judges selected to pass on the essays by the Research Aid Committee of the American Dermatological Association and the decision of the judges shall be final. This contest is planned as an annual one, but if in any year, at the discretion of the Research Aid Committee and judges, no paper worthy of a prize is offered, the award may be omitted.

The prize-winning candidate may be invited to present his paper before the annual meeting of the American Dermatological Association, with expenses paid in addition to the $300 prize. Further information regarding this essay contest may be obtained by writing to the secretary of the American Dermatological Association.

The next annual meeting of the American Dermatological Association will be the Diamond Jubilee Observance of its founding and will be held May 23 to 26, 1951, at the Homestead, Hot Springs, Virginia.

CLEVELAND HEART SOCIETY

A practical course for resuscitation of patients in the operating room will be presented in Cleveland January 25 to 27, February 15 to 17, and March 15 to 17 by Dr. Claude S. Beck under the sponsorship of the Cleveland Heart Society.

Those interested, surgeons and anesthetists particularly, may contact Mrs. Jerry H. Bruner, executive secretary, Cleveland Heart Society, 613 Public Square Building, Cleveland 13, Ohio.

NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

The fourteenth annual meeting of the New Orleans Graduate Medical Assembly will be held March 5 to 8, with headquarters at the Municipal Auditorium, New Orleans.

Nineteen outstanding guest speakers will participate, and their presentations will be of interest to both specialists and general practitioners. The program will include a panel discussion on ACTH and cortisone, a series of talks on trauma and neoplastic disease, a review of the application of radio-active isotopes in medical practice, clinicopathologic conferences, round-table luncheon discussions and many other features.

Another feature of the meeting will be daily demonstrations of medical and surgical procedures in color television. This program will be a telecast from Charity Hospital to the auditorium.

The Assembly has planned a postclinical tour to follow the 1951 meeting. On March 10 a party composed of doctors and their families will leave by plane for Panama. The itinerary also includes Medellin and Cali, Colombia; Quito, Ecuador, and Lima, Peru. Medical programs and visits to hospitals have been arranged, together with a full schedule of sightseeing. The group will return to New Orleans on March 25. Details and a complete itinerary are available at the office of the Assembly, Room 103, 1430 Tulane Avenue, New Orleans 12, Louisiana.

"*A high percentage of cases of seasickness and carsickness can be aborted or prevented by suitable doses of dimenhydrinate (Dramamine).*"

—Council on Pharmacy and Chemistry, New and Nonofficial Remedies, J.A.M.A. *143*:815 (July 1) 1950.

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Conference Headquarters—Municipal Auditorium
March 5-8, 1951

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Dr. Marshall Brucer, Oak Ridge, Tenn.
Atomic Medicine
Dr. Donald M. Pillsbury, Philadelphia, Pa.
Dermatology
Dr. Jerome W. Conn, Ann Arbor, Mich.
Endocrinology
Dr. H. Marvin Pollard, Ann Arbor, Mich.
Gastroenterology
Dr. John L. McKelvey, Minneapolis, Minn.
Gynecology
Dr. Arlie R. Barnes, Rochester, Minn.
Medicine
Dr. Cornelius P. Rhoads, New York, N. Y.
Medicine
Dr. George S. Baker, Rochester, Minn.
Neurosurgery

Dr. Newell W. Philpott, Montreal, Can.
Obstetrics
Dr. John M. McLean, New York, N. Y.
Ophthalmology
Dr. Harold A. Sofield, Chicago, Ill.
Orthopedic Surgery
Dr. Henry B. Orton, Newark, N. J.
Otolaryngology
Dr. Stanley P. Reimann, Philadelphia, Pa.
Pathology
Dr. Albert V. Stoesser, Minneapolis, Minn.
Pediatrics
Dr. Paul C. Hodges, Chicago, Ill.
Radiology
Dr. Nathan Womack, Iowa City, Ia.
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Dr. Charles S. Welch, Boston, Mass.
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Dr. Austin I. Dodson, Richmond, Va.
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Lectures, symposia, clinicopathologic conferences, round-table luncheons, surgical and medical procedures in color television and technical exhibits (All-inclusive registration fee—$15.00)

The Postclinical Tour to Panama, Colombia, Ecuador and Peru—March 10-25

For information concerning the Assembly meeting and the tour, write Secretary, Room 103, 1430 Tulane Avenue, New Orleans 12, La.

AMERICAN MEDICAL WRITERS' ASSOCIATION

The eighth annual meeting of the American Medical Writers' Association will be held at the Pere Marquette Hotel, Peoria, Illinois, September 19 during the sixteenth annual meeting (September 19, 20, 21) of the Mississippi Valley Medical Society in that city.

The association will publish its 1951 membership booklet in February and is desirous of securing as members all physicians interested in any phase of medical writing. Any AMA member who has published two ore more articles, indexed by the *Quarterly Cumulative Index Medicus*, is eligible for membership. Further details may be secured from the secretary, Dr. Harold Swanberg, 510 Maine Street, Quincy, Illinois.

MISSISSIPPI VALLEY MEDICAL SOCIETY ESSAY CONTEST

The eleventh annual essay contest of the Mississippi Valley Medical Society will offer a cash prize of $100, a gold medal, and a certificate of award for the best unpublished essay on any subject of general medical interest, including medical economics and education. Contestants must be members of the American Medical Association who are residents and citizens of the United States. The winner will be invited to present his contribution at the sixteenth annual meeting of the Mississippi Valley Medical Society to be held in Peoria, Illinois, September 19, 20, 21, 1951. All contributions must be typewritten in English in manuscript form, submitted in five copies, not to exceed 5,000 words, and must be received not later than May 1.

Further details may be secured from Dr. Harold Swanberg, secretary, Mississippi Valley Medical Society, 209-224 W.C.U. Building, Quincy, Illinois.

CONTINUATION COURSE

The University of Minnesota announces a continuation course in ophthalmology for physicians specializing in this field. The course will be presented at the Center for Continuation Study, January 22 to 26. Dr. Alson E. Braley, professor and head of the Department of Ophthalmology, University of Iowa, and Dr. A. D. Ruedemann, professor and head of the Department of Ophthalmology at Wayne University, Detroit, will be the visiting faculty members for the course. Staff members of the Mayo Foundation and University of Minnesota Medical School will complete the faculty for the course. The course is given under the direction of Dr. Erling W. Hansen, clinical professor of Ophthalmology and director of the Division of Ophthalmology.

(Continued on Page 1256)

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In treating the disorders that exist in the minds of men, psychiatric nursing plays a vital role. Proper care can be given patients only by properly trained psychiatric nurses.

In view of the present shortage of such trained nurses, and the desperate need for them, the Glenwood Hills Hospitals School of Nursing, Neurology and Psychiatry is appealing to you physicians for aid in solving this problem.

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ANNUAL CLINICAL CONFERENCE

CHICAGO MEDICAL SOCIETY

March 6, 7, 8, 9, 1951 • Palmer House, Chicago

A conference planned to keep physicians abreast of the new things which are developed from year to year.

Special feature of the 1951 Conference—DAILY TEACHING DEMONSTRATION PERIODS from 11:00 to 12:00 noon and 1:30 to 3:00 P.M. Demonstrations will cover:

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- Patients Treated with ACTH and Cortisone
- Dermatologic Clinic
- Organization of a Blood Bank
- Neurological Clinic
- Sterility Tests
- Speech Without Larynx
- Proper Application of Casts and Splints in Fractures
- Local Anesthesia
- Fluid and Electrolytic Balance in Surgery
- Use and Misuse of Obstetrical Forceps
- Common Problems in X-Ray Interpretations
- Laboratory Tests (Diabetes, Proper use of Insulin, Prothrombin Tests)

Thirty-four outstanding teachers and speakers will present half-hour lectures on subjects of interest to both general practitioner and specialist.

Four PANELS on timely topics

Scientific exhibits worthy of real study and helpful and time-saving technical exhibits.

The CHICAGO MEDICAL SOCIETY ANNUAL CLINICAL CONFERENCE should be a MUST on the calendar of every physician. Plan now to attend and make your reservation at the Palmer House.

(Continued from Page 1254)

MINNESOTA SOCIETY OF INTERNAL MEDICINE

At the annual meeting of the Minnesota Society of Internal Medicine at Rochester on October 30, Dr. A. E. Brown of Rochester was elected president of the organization. He succeeds Dr. Frederick H. K. Schaaf, Minneapolis, in the office. Also named as officers were Dr. Sam Boyer, Jr., Duluth, vice president, and Dr. Robert L. Parker, Rochester, secretary-treasurer.

SAINT PAUL SURGICAL SOCIETY

The Saint Paul Surgical Society held its regular meeting at the Minnesota Club, Saint Paul, on November 15. The principal speaker of the evening was Dr. Richard A. Telinde, chief of gynecology at Johns Hopkins University, Baltimore, who discussed "Endometriosis."

SOUTHWESTERN MINNESOTA MEDICAL SOCIETY

At the annual meeting of the Southwestern Minnesota Medical Society at Pipestone on October 30, Dr. P. J. Pankratz of Mountain Lake was elected president of the organization. Other officers named were Dr. S. S. Chunn, Pipestone, president-elect; Dr. W. B. Wells, Jackson, vice president, and Dr. O. M. Heiberg, Worthington, secretary-treasurer.

The principal speaker at the meeting was Dr. A. H. Wells, Duluth, who discussed the value of having the services of a pathologist in the southwestern Minnesota area.

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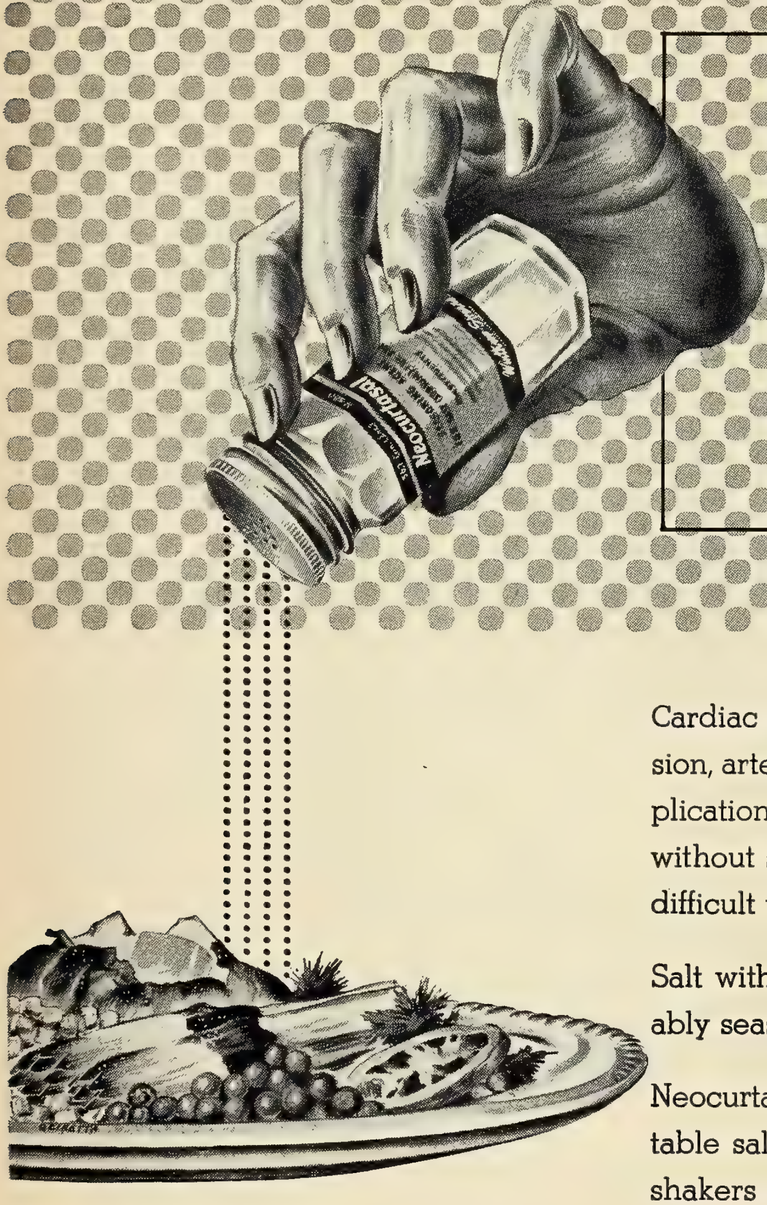

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Woman's Auxiliary

PRESIDENT URGES MEMBERSHIP DRIVE

Mrs. Charles W. Waas

It is not my intention at this time to give you a report on the Conference of Presidents held in Chicago last month from which I have just returned. However, there are some suggestions which I should like to pass on to you. First, I should like to tell you that there were only five presidents who were absent. It was thrilling to be a part of such a large group of presidents and their presidents-elect, and our national president, Mrs. Herold, was so appreciative of the large attendance. Our own Mrs. Wahlquist, national president-elect, presided at the two-day session. We are justly proud of her.

Membership in a medical auxiliary is a privilege extended to us by our husbands. Why, then, are there so many doctors' wives in our own state who do not belong? Is it the fault of auxiliary members? Have we extended a truly friendly invitation? The cost of membership is so small that it never enters into the question. Increased membership is one of our greatest aims this year. Won't you do your share? Don't forget the doctors' wives who live in counties where there are no auxiliaries. Members at large are invaluable. Our parent organization is eager to have them. Ask them to join now and then invite them to attend your next meeting. Here let me say that at the next state board meeting which will be held in Minneapolis, probably during the month of January, all members of the state auxiliary will be most welcome. It will not be confined to board members. Invite new members to attend with you.

In your drive for subscriptions to *Today's Health,* have you thought about contacting young mothers? There is a wealth of information in this authentic magazine for them, and when they become acquainted with it they will surely want to carry on their subscription year after year. We are neglecting our friends and neighbors if we deprive them of the opportunity of reading this worthwhile periodical. Have you thought about giving subscriptions for gifts? Perhaps in your community there are mothers of families who would be happy to receive such a gift. A copy of the magazine should be found in every doctor's reception room, in every high school, community center, club, beauty shop, barber shop and countless other stations. There is room for much improvement. Won't you do your share?

What kind of programs have you planned? Sometimes during membership drives we are told that our programs are not interesting. Why aren't they? There are many suggestions for programs, many films and much literature to be had for the asking. Have your program chairmen contact our state program chairman and with her help, you can have a splendid program at every meeting. Plan one or two meetings to which you can invite your lay friends.

Public relations! Every doctor's wife should be a committee of one! We have a marvelous opportunity to spread the truth and clarify matters for lay people. Our husbands have met the challenge hurled at them and they are fighting honestly and fearlessly for the American way of life. Auxiliary members—be well informed! Do your share!

DRIVE STARTED TO COLLECT SAMPLE DRUGS

Mrs. Bernard E. O'Reilley, Chairman
Committee on Medical and Surgical Relief

Sample drugs received in doctors' offices can help fill the need of many institutions whose budgets don't allow purchase of many of these drugs. Auxiliary members are urged to arrange to spend a few hours twice or more a year to collect the sample drugs. Members should ask their husbands to save these drugs for collection. Office girls will be glad to have a box or large paper bag placed in the office for the samples. The orphanages, rest homes, county homes, missionary societies throughout the state will welcome boxes of drugs for distribution. Auxiliary members are asked to start now saving the samples for this worthwhile work. In the next issue of MINNESOTA MEDICINE the names of organizations that will accept instruments and drugs for shipment overseas will be listed.

Drugs may be separated into groups, such as vitamins, baby foods, salves, headache medicine, et cetera. Don't let valuable drugs be wasted.

PROMINENT AUXILIARY MEMBER DIES

Mrs. William J. Byrnes died in Minneapolis October 21, 1950. Mrs. Byrnes was the widow of Dr. William J. Byrnes, who died in November, 1929. Dr. Byrnes was of a pioneer family, coming from New York in 1851.

Mrs. Byrnes was the organizing president of Hennepin County Medical Auxiliary in October, 1910. She has held the office of parliamentarian several times for the Woman's Auxiliary to the Minnesota State Medical Association.

She was a life member of the Minnesota Historical Society, a member of the Minneapolis Woman's Club, the Lewis Parliamentary Law Club, the American Legion Auxiliary and the Oak Park Study Club. She is survived by three daughters: Miss Lyle Byrnes, Mrs. Hallan Huffman, and Mrs. Robert Seiberlich.

The experience of two great wars and studies of the mortality figures of tuberculosis in relation to environment have shown that when the standard of living falls tuberculosis rises.—FREDERICK HEAF, *British Medical Journal,* November 5, 1949.

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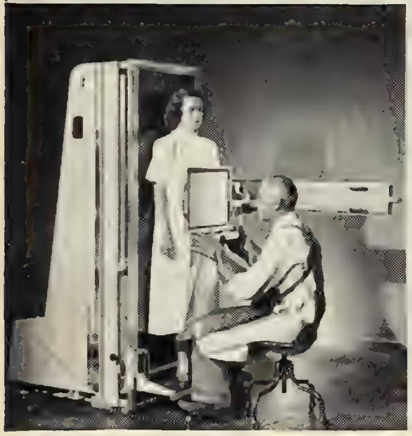

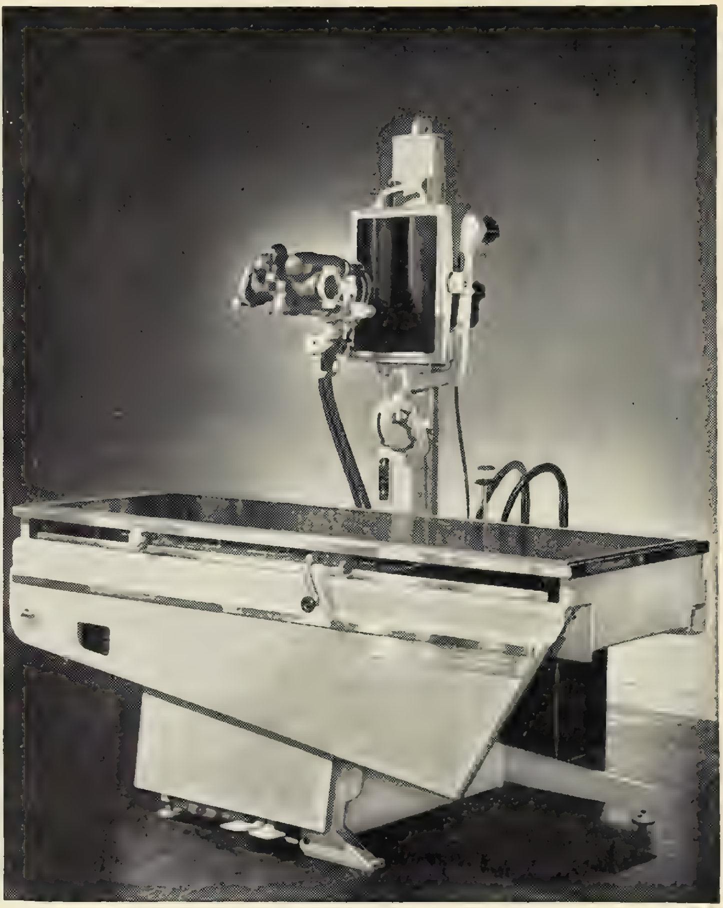

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In Memoriam

JOHN PHINEAS BARBER

Dr. John P. Barber, a Minneapolis physician for more than fifty years, died October 13, 1950, at the age of ninety-three.

Dr. Barber was born near Bardstown, Kenutcky, October 27, 1857. He graduated from Cecilian College in 1881 and from the University of Louisville Medical School in 1886. He interned at SS. Mary and Elizabeth Hospital in Louisville, after which he moved to Minneapolis.

He was a member of the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association, the Knights of Columbus, the Sons of the American Revolution and the Hibernians.

Surviving are his wife, Alice W., five sons and five daughters.

GUSTAF WILLIAM DAHLQUIST

Dr. G. W. Dahlquist, formerly of Lancaster, Minnesota, died October 25, 1950, at the Minnesota Soldier's Home. He was eighty-six years of age.

Dr. Dahlquist obtained his M.D. degree at the University of Minnesota in 1893 and practiced at Lancaster, Minnesota, from 1907 to 1917 when he enlisted in the Army. After World War I, he returned to Lancaster and several years later went to Fargo, North Dakota, where he was on the medical staff of the Veterans Administration for ten years.

Mrs. Dahlquist passed away last winter. Dr. Dahlquist is survived by six children.

ALEXANDER G. DUMAS

Dr. Alexander G. Dumas, Chief of the Neuropsychiatric Service, Veterans Administration Facility, Minneapolis, Minnesota from 1922 to 1944, died October 2, 1950.

Dr. Dumas was born in Minneapolis, May 11, 1896. He obtained a B.S. degree from St. Thomas College in Saint Paul in 1916, and an M.D. from Creighton University Medical School, Omaha, Nebraska in 1921. After interning at St. Joseph's Hospital in Omaha, Nebraska, he took postgraduate study at the State Hospital for the Insane at Osawatomie, Kansas, for eighteen months. He was a veteran of World War I.

Dr. Dumas was a member of the Hennepin County Medical Society, the Minnesota State Medical Association, the American Medical Association, and the American Psychiatric Association. He was an Associate Professor of Psychiatry and Neurology in the University of Minnesota Medical School. He was one of the founders of the Governor's Advisory Committee on Mental Health and former chairman of that committee.

He was formerly Chief of Staff at Glenwood Hills and Homewood hospitals in Minneapolis, neuropsychiatric consultant to municipal courts in Hennepin County, medical director of Minnesota Mental Hygiene Society, Inc., and member of former Governor Stassen's crime commission.

Dr. Dumas married Octavia Dyke of Minneapolis in 1921. He is survived by his wife; a daughter, Mrs. Keith Brueckner, Princeton, New Jersey; three sons, James A., Cody, Wyoming, Frederick G., Stamford, Connecticut, and John C., Saint Paul; two grandchildren; his father, George A.; three brothers, Fred, Roy and Delbert, and one sister, Mrs. Kenneth Smith, all of Minneapolis.

Dr. Dumas was an outstanding leader in his field and an honor to his profession. His life was characterized by his devotion to his family and friends from all walks of life. His passing is a real loss to the medical profession and to the community.

I. GRANT DAVIS

Dr. I. Grant Davis, a practitioner at Rushford, Minnesota, until he sold his practice July 1, 1950, died at the home of Mr. and Mrs. Edward Reishus, Rushford, September 29, 1950.

Dr. Davis was born at Arcadia, Wisconsin, October 30, 1887. He obtained a B.S. degree from the University of Wisconsin in 1912 and an M.D. from Rush Medical College in 1914. His internship was served at La Crosse Lutheran Hospital at La Crosse, Wisconsin.

Dr. Davis practiced at Duluth in 1916, at Little Falls in 1917 and 1918, and served as a lieutenant in the Army in 1918 and 1919.

He was a member of the Olmsted-Houston-Fillmore-Dodge County Medical Society, the Minnesota State Medical Association and the American Medical Association. For many years he was health officer at Peterson and Rushford. He was active in the Masonic order, serving as secretary of the local lodge for many years.

Dr. Davis never married.

JOSEPH ELLSWORTH McCOY

Dr. J. E. McCoy, formerly of Ironton and lately of Thief River Falls, died September 22, 1950.

Dr. McCoy was born at Hillsboro, Ohio, February 4, 1870. He studied at Lebanon College in Ohio before attending Hospital College of Medicine at Louisville, Kentucky, where he graduated in 1897. In 1910 he came to Ironton, Minnesota, where he practiced until he moved to Thief River Falls in 1937.

In 1902 he married Clara Steiner, who died in 1929. Dr. McCoy married Julia Johnson in 1936. He is survived by Mrs. McCoy and two sons, Vernon of Minneapolis and Homer of Los Angeles.

Dr. McCoy was a former member of the Lyon-Lincoln Medical Society, the Minnesota State Medical Association and the American Medical Association.

Municipal Bonds and Inflation

The problem of inflation and its eventual effect upon an investor's savings was discussed in our last article by quoting from an address of Mr. Phillips Barbour, editor of the BOND BUYER, given before the Municipal Forum of the National Security Traders Association. The quotations below are from the same address under the section entitled, "How Municipals Fit Into the Picture."

(1) They are secure: Municipals are the only form of investment among those mentioned, that the investor can be as sure, as he can be about anything these days, that he will have his principal returned to him in full on a specified date in future.

(2) Income is dependable: With few exceptions among those mentioned, municipals alone, provide a regular income.

(3) They are the only income-producing investment in which the investor can know not only the number of dollars he will receive on a certain date, but how many of those dollars he may keep for himself to use as he wishes.

(4) There is opportunity for growth in market value of municipals, because as inflation grows taxes usually grow, as a result the value of the municipal income grows because it is tax-exempt. Thus, tax exemption tends to compensate for loss of purchasing power.

(5) Municipals are easy to buy or sell. Banks and brokers everywhere are accustomed to handling such transactions.

(6) They are an ideal collateral for making quick loans and banks are in no way restricted in making such loans.

(7) While municipals may not be bought blindly, the problem of picking a satisfactory investment in that category is simpler than in any other I know of, because the fundamental security underlying all municipals is substantially the same.

(8) Most municipals are paid out of taxes and taxes must be paid before dividends. Thus these securities have a prior claim, as it were, over dividends. When not paid out of taxes they are paid from revenues received for vital services rendered, such as sale of water, on which they have a monopoly."

We have reprints of Mr. Barbour's address available and will be pleased to send you one without obligation, upon request.

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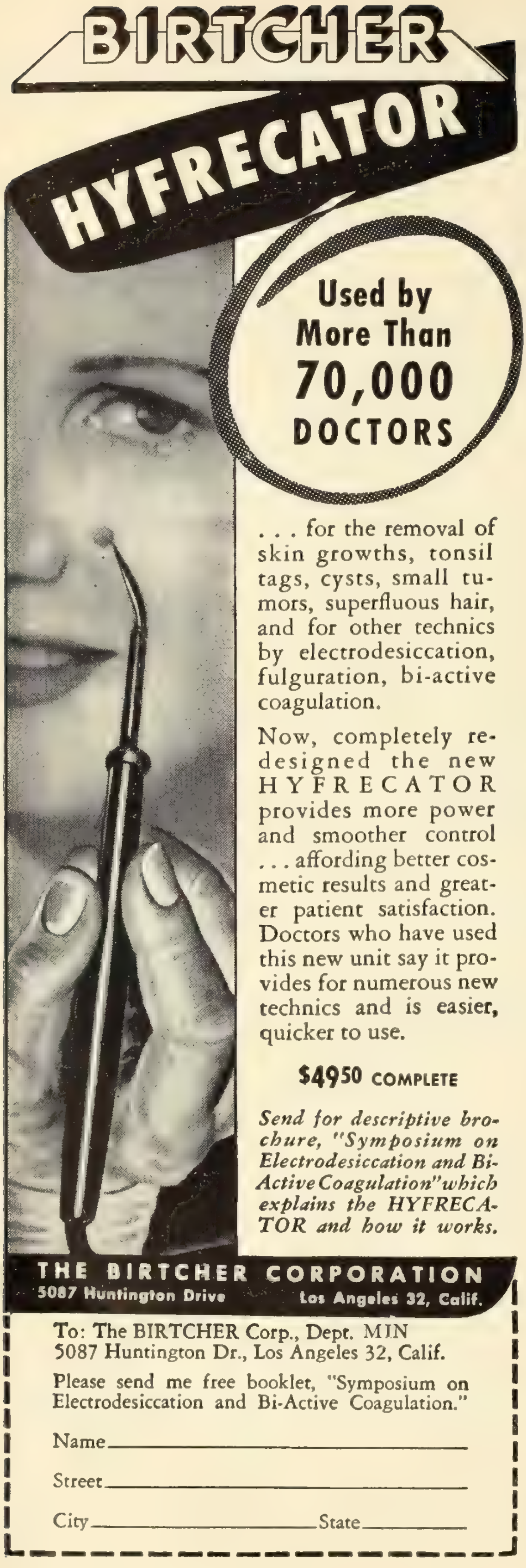
ERNEST S. MARIETTE

Dr. Ernest S. Mariette, who completed thirty-three years of service as superintendent of Glen Lake Sanatorium before his retirement, November 1, 1949, because of ill health, died October 29, 1950. He was sixty-two years of age.

Dr. Mariette was born January 3, 1888, in Blue Earth County. He graduated from the University of Minnesota Medical School in 1913 and interned at the University of Minnesota Hospital. From 1913 to 1916 he was on the staff of Nopeming Sanatorium.

Under his direction, Glen Lake Sanatorium, Hennepin County's hospital for the tuberculous, became nationally recognized as one of the great tuberculosis sanatoria of the United States. It was the first tuberculosis hospital in the country to receive a Class A rating from the American College of Surgeons.

A member of the board of directors of the National Tuberculosis Association, Dr. Mariette served as president of the Mississippi Conference on Tuberculosis, as president of the Minnesota Trudeau Society and, from 1946 through 1948, as president of the Hennepin County Tuberculosis Association. He was a member of the Hennepin County Medical Society, the Minnesota State Medical Association, the American Medical Association, and the American Hospital Association, and was an assistant professor of medicine at the University of Minnesota Medical School.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Many outstanding physicians in tuberculosis work were trained under his direction at Glen Lake Sanatorium. A special contribution of Dr. Mariette was his pioneer use of BCG vaccine in the protection of nurses and in initiating an in-sanatorium program for the rehabilitation of tuberculosis patients.

Dr. Mariette is survived by his wife, Anna; a son Sidney of Hopkins, and a daughter, Grace L. of Maplewood.

FRANK LYNAM

Dr. Frank Lynam, a resident surgeon at the Duluth shipyards during both World Wars, died at his home in Minneapolis, October 8, 1950. He was eighty-four years of age.

Dr. Lynam was a graduate of Bowdoin College and the Harvard Medical School. He was administrator of the American Relief Administration in Russia in 1922. At one time he was a member of the University of Michigan Medical School faculty and was a medical supervisor for the British in the Bahama Islands.

Surviving are his wife, Hazel, and two daughters.

WILLIAM ARNOLD MEIERDING

Dr. W. A. Meierding, who practiced in Springfield, Minnesota from 1911 to 1927 and in Mankato from 1927 to 1931, died October 12, 1950 in Corona, California, at the age of seventy.

Dr. Meierding was born at New Ulm, July 6, 1880. He graduated from the University of Minnesota Medical School in 1907 and interned at the Metropolitan Hospital in New York City and the Fergus Falls State Hospital.

In June, 1912, he married Alma Bendixen. They had two sons, William and Robert. During World War I, Dr. Meierding served as a lieutenant in the Medical Corps.

EDWIN ELMER SHRADER

Dr. E. E. Shrader, formerly of Winsted, Minnesota, died at Watertown, Minnesota, October 21, 1950. He was eighty-eight years of age.

Dr. Shrader obtained his medical degree from the University of Minnesota Medical School in 1893, and that same year began practice in Watertown. In 1928 he retired and moved to California. In 1935 he returned to Winsted, where he practiced until 1950. On January 22, 1950, on the occasion of his retiring from practice and moving to Watertown, he was tendered a farewell party by his many friends.

Dr. Shrader was a life member of the Wright County Medical Society, the Minnesota State Medical Association and the American Medical Association.

In a world in which co-operation on the political level seems at present an unrealizable dream, it is heartening to recall that it has existed for a long time in the field of health. Widespread public health is both an instrument and a condition of any lasting peace.—Dr. F. W. Behmler, *Minnesota's Health,* October, 1950.

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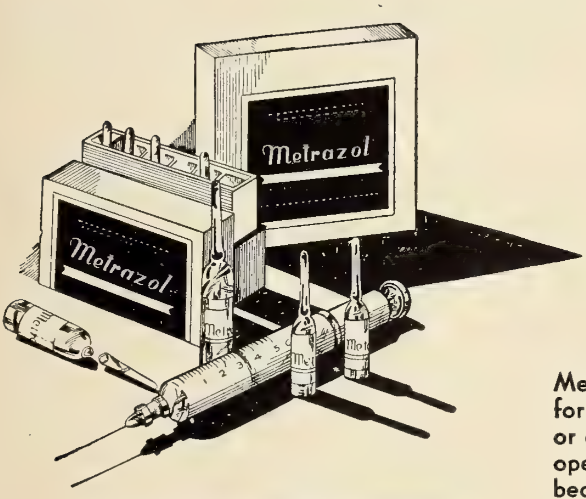

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◆ Of General Interest ◆

Thirteen Minnesota physicians were inducted into the **American College of Surgeons** at a meeting in Boston on October 27. The physicians are Dr. Charles F. Brigham, Jr., St. Cloud; Dr. Tague C. Chisholm, Minneapolis; Dr. Walter K. Haven, Minneapolis; Dr. Richard C. Horns, Minneapolis; Dr. Karl E. Johnson, Duluth; Dr. Malcolm R. Johnson, Minneapolis; Dr. Donald R. Lannin, Saint Paul; Dr. Donald P. McCormick, Minneapolis; Dr. Raymond K. Minge, Worthington; Dr. Siegfried G. G. Oeljan, Waseca; Dr. John H. Rosenow, Minneapolis; Dr. Melvin Schlemenson, Saint Paul; Dr. Donald E. Stewart, Crookston.

* * *

Dr. A. L. Arends, formerly on the staff of the state hospital at Moose Lake, has opened offices for the practice of medicine in Cokato.

* * *

On November 16, **Dr. C. R. Stanley** of Worthington attended a meeting of the Eye, Ear, Nose and Throat Society of Omaha and Council Bluffs. The meeting was held in Omaha.

* * *

The thirtieth anniversary of the founding of the **Northwestern Clinic** in Crookston was observed on November 11 at the annual dinner for the staff and employes. Fifty-two persons attended, in contrast to the first dinner at which the attendance was five. The clinic was founded thirty years ago by Dr. M. O. Oppegaard, Dr. C. L. Oppegaard and the late Dr. O. E. Locken.

* * *

Dr. Paul F. Brabec, formerly of Forsyth, Montana, has opened offices for the practice of medicine in Detroit Lakes.

* * *

Dr. J. Arthur Myers, professor of medicine, preventive medicine, and public health at the University of Minnesota, was awarded the Hoyt E. Dearholt Medal given annually by the Mississippi Valley Conference on Tuberculosis for outstanding contributions to tuberculosis control. Presentation was made to Dr. Myers at the annual Christmas Seal Dinner of the Minnesota Public Health Association on October 25.

* * *

Dr. Charles W. Fogarty, Jr., of Saint Paul, addressed the Stearns-Benton County Medical Society at St. Cloud on November 16. His subject was "The Use of Cortisone and ACTH in the Treatment of Arthritis."

* * *

The CARE-UNESCO Book Fund celebrated its first anniversary on September 26 by announcing it had received nearly a million dollars in contributions and pledges to provide new books and scientific equipment for educational institutions overseas.

The report showed that 378 educational institutions in twenty-four countries have benefited by deliveries of text and reference works purchased with contributions of various amounts sent to the Book Fund at CARE headquarters, 20 Broad Street, New York City, and local CARE offices throughout the United States, Canada and South America.

Poland and Czechoslovakia closed all CARE service during the year, and deliveries to Korea have had to be suspended because of the military situation. When conditions permit, the Korean operation will be resumed.

Contributions in any amount are accepted by the Book Fund. Sums under $10 are pooled in the general fund. Donors of $10 or more may designate the institution, country and category of book; CARE returns to them a receipt signed by the recipient and, on request, their name is inscribed on the special CARE-UNESCO book plate in each volume. CARE's purchases are based on extensive book lists compiled by a committee of U. S. librarians and scientists headed by Dr. Luther Evans, U. S. Librarian of Congress.

* * *

Dr. Richard Utne of Northfield reported for service at San Antonio, Texas, on November 1.

* * *

Dr. Stewart W. Shimonek, Saint Paul, announces the association of Dr. Mentor H. Christensen in the practice of orthopedic surgery at 942 Lowry Medical Arts Building. Dr. Shiminek has returned temporarily to duty with the United States Navy.

* * *

Dr. Francis J. Savage and Mrs. Mary Watson Blodgett were married on November 1, and are at home at 719 Linwood Avenue, Saint Paul.

* * *

Christmas Seals—Again the Minnesota Public Health Association is conducting its yearly sale of Christmas Seals to assist in the fight against tuberculosis. While each year shows a drop in the tuberculosis death rate in the state, tuberculosis continues to be first as a cause of death in the age group of fifteen to thirty-five.

The funds collected through the sale of seals finance educational programs, make possible tuberculosis testing surveys in our schools and assist in paying for county-wide mass x-ray surveys.

It is imperative that the Christmas Seal Sale be supported each year until tuberculosis is eradicated from the human race.

* * *

Mrs. Donald S. Branham, the wife of Dr. Donald S. Branham, staff member of the St. Peter State Hospital, died in Mankato on October 31.

(Continued on Page 1266)

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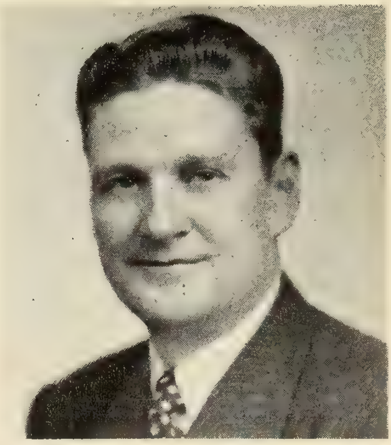

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(Continued from Page 1264)

Three Minnesota physicians were on the program as Mankato held its special community **Health Day** on October 11. Dr. Ralph Rossen, commissioner of mental health in Minnesota, discussed the state's mental health program. Dr. William S. Chalgren, Mankato, conducted a panel discussion on "The Emotional Development of the Child." Dr. Roger W. Howell, associate professor of neuropsychiatry at the University of Minnesota, spoke on "Parents' Reaction to Their Children."

* * *

Dr. Arthur H. Wells, Duluth, was re-elected president of the Minnesota Division, American Cancer Society, at its annual meeting in Saint Paul early in November. He will be serving his third one-year term in the office.

* * *

It was announced early in October that **Dr. Keith D. Larson** had opened offices for the practice of medicine in White Bear. A graduate of Northwestern University Medical School, Dr. Larson served his internship at Presbyterian Hospital in Chicago. He completed residencies in pathology and heart diseases at Cook County Hospital, Chicago, and then spent nearly five years at the Mayo Clinic.

* * *

Dr. and Mrs. R. V. Williams, Rushford, returned in October from a three-month tour of Europe. Although most of the trip was spent in Norway, they also visited eight other countries.

* * *

Dr. Clyde A. Undine, Minneapolis, attended the Midwest regional meeting of the American College of Physicians at Madison, Wisconsin, on November 18.

* * *

Robert Joyer, M.D., assistant medical director of the **Saint Paul Red Cross Regional Blood Center,** has resigned, effective December 1, to accept the medical directorship of the Omaha Regional Blood Center, according to an announcement by Dr. E. V. Goltz, Saint Paul director.

The resignation leaves a vacancy at the center and creates an opportunity for a young physician who wishes to make a life work in hematology and public health. Dr. Goltz pointed out that the program is still in its infancy and that there are unlimited opportunities in the field.

Thirty-five Red Cross blood centers are now in existence and the schedule calls for the establishment of fifteen additional centers within a five-year period.

* * *

At the annual meeting of the Governors and Fellows of the **American College of Surgeons** held in Boston, October 26, Dr. Alton Ochsner, New Orleans, was elected president; Dr. Thomas H. Lanman, Boston, first vice president, and Dr. Joel W Baker, Seattle, second vice president. These officers

(Continued on Page 1268)

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Surgical Technic, Surgical Anatomy and Clinical Surgery, four weeks, starting February 5, March 5.
Surgical Anatomy and Clinical Surgery, two weeks, starting February 19, March 19.
Surgery of Colon and Rectum, one week, starting March 5.
Basic Principles in General Surgery, two weeks, starting April 2.
Gallbladder Surgery, ten hours, starting April 23.
Fractures and Traumatic Surgery, two weeks, starting March 19.
GYNECOLOGY—Intensive Course, two weeks, starting February 19.
Vaginal Approach to Pelvic Surgery, one week, starting March 5.
OBSTETRICS—Intensive Course, two weeks, starting March 5.
MEDICINE—Intensive General Course, two weeks, starting April 23.
Gastro-enterology, two weeks, starting May 14.
Gastroscopy, two weeks, starting March 5.
Electrocardiography and Heart Disease, two weeks, starting March 19.
PEDIATRICS—Intensive Course, two weeks, starting April 2.
Informal Clinical Course every two weeks.
UROLOGY—Intensive Course, two weeks, starting April 16.
Cystoscopy, Ten Day Practical Course, every two weeks.

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Dr. Hewitt B. Hannah
Dr. Andrew J. Leemhuis.

(Continued from Page 1266)

will be installed at the 1951 Clinical Congress to be held in San Francisco. Dr. Owen H. Wangensteen, Minneapolis, was elected to fill the unexpired term of Dr. Dallas B. Phemister, resigned, on the Board of Regents.

* * *

Under the teaching grant program, inaugurated two years ago, the **Public Health Service's** National Heart Institute has awarded to date $1,463,814 to forty-nine medical schools in twenty-nine states and the District of Columbia to provide better teaching equipment and wider instruction in heart disease.

Twenty-one new grants plus renewal of forty-four earlier grants, making a total of $855,740, have been approved for mental health research upon recommendation of the National Advisory Mental Health Council of the National Institute of Mental Health, Public Health Service, according to a recent announcement of Oscar R. Ewing. One of the research problems is the attempt to identify the different personality structure of the pre-diabetic. The May Institute for Medical Research, Cincinnati, Ohio, will make a three-year study of the mental, emotional and physical make-up of a selected group of pre-diabetic individuals before these people actually become ill. How this will be accomplished before diabetes develops is not made clear, but doubtless, tax dollars will solve the problem.

One hundred sixty-six grants, totaling $1,915,708 were awarded through the Public Health Service's National Institute of Mental Health to help the expansion of teaching programs in medical schools, universities and other training centers. In addition, an allocation of $1,179,003 will make possible the award of about 560 stipends to graduate students of psychiatry, clinical psychology, psychiatric social work and psychiatric nursing. For these purposes $158,248 goes to the University of Minnesota.

* * *

Dr. E. C. Kendall, director of the Mayo Clinic biochemistry laboratory at Rochester, received the medal of honor of the Canadian Pharmaceutical Manufacturers Association at Ottawa on October 31 for his work in isolating cortisone and ACTH.

* * *

Dr. Gordon R. Kamman, Saint Paul, presented the closing lecture at the Regional Postgraduate Seminar in Gynecology held at Worthington. His subject was "Psychosomatic Problems in Gynecologic Practice."

* * *

One of the series of articles entitled "How America Lives," which have been appearing in the Ladies Home Journal, is a description of a country doctor in the November issue. The editors of the publication chose **Dr. Charles Sheppard** of Hutchinson from among several practitioners as being typical of a small-town American doctor. Although hesitant

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at first about lending his name to this type of publicity, when he was assured that he would be beyond criticism on the part of his confreres, Dr. Sheppard agreed to co-operate with the magazine's representative. The result is an interesting article about a small-town doctor and his family.

* * *

Dr. William B. Stromme, Minneapolis, spent a week at the Cornell Medical Center, New York, from November 11 to 18. He lectured at Cornell on the subject, "Management of Abortion."

* * *

Dr. A. J. Chesley, executive officer of the Minnesota Department of Health, was given one of the four Arthur Thomas McCormick awards for meritorious service in public health at the annual conference of the Association of State and Territorial Health Officers in Washington, D. C., on October 27.

* * *

Dr. Gaylord W. Anderson, director of the School of Public Health at the University of Minnesota, was named president-elect of the American Public Health Association at its annual meeting in St. Louis, October 30 to November 3.

* * *

Dr. Betty St. Cyr Gilson, formerly of Robbinsdale, has been named "Woman of the Year" by the Great Falls, Montana, Business and Professional Women's Club. Dr. Gilson received her award for her work at the Western Foundation for Clinical Research and as director of the Cascade County rheumatic fever pilot program. A graduate of the University of Minnesota, Dr. Gilson studied for five years at the Western Reserve University Hospital. She is married to Dr. John Gilson and is the mother of two children.

* * *

Dr. Don E. Nolan, a native of Beardsley and a graduate of the University of Minnesota Medical School, has been named manager of a 325-bed Veterans Administration hospital being built at Seattle, Washington.

* * *

It was announced on November 16 that **Dr. Daniel K. Halvorsen,** formerly of Minneapolis, had become associated in practice with Dr. Ernest J. Nelson in Owatonna. A graduate of Yale University Medical School, Dr. Halvorsen served his internship at the University of Minnesota Hospitals. During the past year Dr. Halvorsen was a fellow in surgery at the University of Minnesota and served as a resident surgeon at Northwestern Hospital, Minneapolis.

* * *

Dr. Walter M. Boothby, professor emeritus of the Mayo Foundation, has joined the staff of the School of Aviation Medicine, Randolph Field, Texas, as research advisor. While with the Mayo Foundation, Dr. Boothby was chief of the section on metabolic research and he organized the aero-medical

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unit for research in aviation medicine. For the past two years he has been advisor on research in aviation medicine and physiology to the Swedish Aviation Medicine Council at the University of Lund, Sweden.

* * *

Dr. Peter C. Peterson, formerly of Mora, has moved into the offices of the late Dr. E. L. Baker at 1517 Como Avenue S. E., Minneapolis. Dr. Petersen has been in practice since 1934, practicing medicine at Braham, Mora, and Northwestern Hospital, Minneapolis.

* * *

After practicing at Bird Island since 1946, Dr. **Walter E. Hinz** has moved to Willmar and opened offices for the practice of medicine there. A graduate of the Northwestern University Medical School, Dr. Hinz served in the Army for three years during World War II.

* * *

The second annual David L. Tilderquist memorial lecture was presented before the St. Louis County Medical Society on November 9 by **Dr. Heinrich G. Kobrak,** associate professor of otolaryngology at the University of Chicago. The lecture, which was entitled "Going Behind the Iron Curtain of the Ear," included motion pictures showing the bones of the ear in actual vibration. The pictures, taken with high-speed photographic and stroboscopic equipment, slow the vibrations to one per second and show for the first time the actual function of the ear.

* * *

A grant by the government of $15,058 to the University of Minnesota for cancer research was announced on November 13. The grant is for a project directed by **Dr. George E. Moore,** clinical instructor in surgery at the University.

* * *

Five Minnesota physicians were certified as fellows of the **International College of Surgeons** at the annual assembly of the United States Chapter in Cleveland early in November. They are Dr. Herbert H. Busher and Dr. Wallace L. Fritz, both of Saint Paul; Dr. Collin S. McCarty, Rochester; Dr. W. C. Stillwell, Mankato, and Dr. Leonard A. Titrud, Minneapolis.

* * *

Dr. B. J. Cronwell, Austin, attended the Utah regional meeting of the American College of Physicians at Salt Lake City early in November.

* * *

Dr. A. Mason Randall, Ashby, was paid tribute by residents of the Ashby area at a special meeting held in his honor on November 13. The program was plannned in recognition of Dr. Randall's forty-one years of service to the people of Ashby and vicinity.

* * *

Dr. C. H. Holmstrom, Warren, was elected president of the board of education of the new Warren Consolidated Independent District No. 2J at the organizational meeting of the board in Warren late in September. Dr. Holmstrom has served as president of the Warren district for several years.

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Dr. Charles W. Mayo, Rochester, was one of the speakers at the dedication on November 5 of the Lovelace Foundation's million-dollar medical building in Albuquerque, New Mexico. Dr. W. Randolph Lovelace II, a former member of the Mayo Clinic staff, is now a member of the board of trustees of the foundation.

* * *

Dr. Albert D. Corniea, Minneapolis, was guest of honor at a dinner meeting of Maternity Hospital medical staff and board members in Minneapolis on October 30. Dr. Corniea has been a staff member of Maternity Hospital for twenty-five years.

* * *

At a showing of the motion picture "Breast Self-examination" in Crookston on November 6, **Dr. C. G. Uhley** of Crookston acted as commentator for the picture and conducted a question-and-answer session following the picture. The showing of the film was sponsored by the local American Legion post and auxiliary and the First District of the Minnesota Nurses Association.

* * *

Dr. Henry W. Meyerding, Rochester, took office as president of the United States Chapter of the International College of Surgeons at the group's assembly in Cleveland, Ohio, on November 3.

* * *

It was announced on October 27 that **Dr. Bernard Nauth** of Bemidji would practice in Gonvick three afternoons each week, to substitute partly for Dr. Norman F. Stone, who has gone back into military service.

* * *

The American College of Physicians held a postgraduate course in peripheral vascular diseases in Rochester, November 27 through December 2. **Dr. Walter F. Kvale,** of the Mayo Clinic staff, was director of the course.

* * *

Dr. Donald C. Anderson, formerly of Olivia, has purchased the practice of Dr. W. E. Hinz in Bird Island and has begun practice there. Dr. Hinz is now practicing in Willmar.

* * *

Principal speaker at the dedication dinner for the new student health service building at the University of Minnesota was **Dr. William P. Shepard,** president of the American Public Health Association. At the dinner, held in the University's Coffman Memorial Union, on November 6, Dr. Shepard spoke on "Student Health and Public Health."

* * *

The counseling clinic of the Rochester-Olmsted County Public Health Department acquired its first full-time director during the first week of October when **Dr. George Williams** accepted appointment to the office. Dr. Williams was formerly on the staff of the Minneapolis Veterans Hospital. A graduate of St. Louis University, he interned at the St. Mary's group of hospitals in St. Louis.

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Approximately 250 friends and relatives attended an open house celebration of the golden wedding of **Dr. and Mrs. J. A. Thabes, Sr.,** Brainerd, last month.

Dr. Thabes and his wife are widely known in the Brainerd area for their long and selfless service in community affairs. Dr. Thabes came to Brainerd in 1882 and has practiced medicine in that city for fifty-three years. Dr. Thabes was honored by the Minnesota State Medical association for completing fifty years of service in medicine by being elected to membership in its "Fifty Club" three years ago.

Recently Dr. Thabes was honored by the Elks and Masons for having been an active member of each organization for fifty years. He is a charter member of each. He has just completed serving as chairman of the Crow Wing-Aitkin Sanitorium commission, a position he has held for the past thirty-two years. He has been a member of the Upper Mississippi Medical society for 30 years, since its organization; was president of the State Board of Health for eleven years and has been a member of the American College of Surgeons for thirty years.

Mrs. Thabes has also led an extremely active life, having taught school a number of years, and working along education and health lines. She has served as president of the State Medical auxiliary for many years, and headed the Red Cross in Crow Wing county for thirty years. She has also been a member of the executive committee of the Minnesota Public Health association for twenty-five years, and has the distinction of being the only woman president of that organization, serving as such in 1947 and 1948. She was Republican state chairwoman in 1932-1933.

Dr. Thabes and his wife, among Brainerd's leading citizens, have served the community not only as a doctor and his wife, but have been two of its most public-spirited residents, giving much of their time to working with and for the people of the locality.

HOSPITAL NEWS

Dedication of the new **Ely-Winton Memorial Hospital** took place on November 12. Principal speaker at the dedication of the thirty-five bed hospital was Dr. Vernon D. E. Smith of Saint Paul.

* * *

Dedication services for the new 141-bed addition to **St. Luke's Hospital,** Duluth, were held on November 17. A box filled with articles and information about the hospital, to be "of interest 200 years hence," was sealed in the cornerstone of the addition.

* * *

At a meeting of the commission for the Aitkin-Crow Wing County sanatorium late in October, a resolution was adopted recommending that the **Deerwood Sanatorium** be closed. It was pointed out that modern surgical procedures cannot be carried out in small sanatoriums, and that due to the limited number of patients the cost of running a small institution is proportionately too high. It was stated

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that if the patients at Deerwood Sanatorium had been transferred to a large institution, there would have been a saving to the counties of $13,000 last year.

* * *

A new half-million-dollar building at the **Rochester State Hospital** was dedicated on November 2. The structure, which is part of a twenty-two-million-dollar group of buildings being constructed under the new mental health program, will house 150 aged women patients with mental illness. Principal speaker at the dedication ceremonies was Governor Luther Youngdahl. Dr. Magnus C. Petersen is superintendent of the hospital.

* * *

The **Valleyview Hospital**, near Shakopee, opened its doors to patients on November 16. The five buildings comprising the institution have been completely remodeled during the past two years under the supervision of Dr. J. C. Michael, Minneapolis, medical director of the hospital. Forty-four beds were available at the time of opening, but when the main structure is completed, the capacity will be 102 beds. The hospital will care for long-term chronic and convalescent patients.

BLUE CROSS-BLUE SHIELD NEWS

More than 100,000 claims have been adjudicated by Minnesota Medical Service, Inc. This represents something of a milestone in the progress of Blue Shield and bears evidence of our increasing usefulness and value to the contract holder.

Minnesota Blue Shield payments for September, 1950, totaled $231,979.03, providing allowances on 6065 cases covering 27,535 days of hospital care. Of these cases 4576 were for services rendered hospitalized patients; 1465 for office cases and twenty-four for services rendered in the patient's home. Of the total payment for the month, $210,590.91 was for hospitalized cases, $21,069.12 for office cases and $319.00 for home cases. Major surgical procedures totaled 818 representing 7004 days in the amount of $85,282.82; minor procedures totaled 5247, representing 20,531 days' care with payment of $146,696.21.

Payments to participating doctors totaled $220,169.27, representing 3517 surgical cases in the amount of $143,227.67; 1583 medical cases in the amount of $38,517.60, and 720 obstetrical cases in the amount of $38,424.00. Nonparticipating doctors in the state received payment for fifty-eight surgical cases in the amount of $4,347.64; thirty-eight medical cases totaling $960.50 and five obstetrical cases in the amount of $318.00. Out-of-state doctors received payments totaling $6,183.62 covering 144 cases.

Blue Shield enrollment increased during the month to 378,105 participant subscribers; 2001 new Blue Shield contracts became effective. Blue Cross enrollment as of September 30, 1950, totaled 1,027,701.

In order that insofar as possible all 1950 business can be cleared during January, 1951, it is requested that each of you submit claims on any unreported Blue Shield cases. In addition if there are any claims which have been reported prior to October 1, 1950, on which no Blue Shield action has been taken, it is suggested that these cases again be reported, bearing the notation "duplicate."

To enable the Blue Shield office to continue its effective operation, you, the doctor of medicine in Minnesota, can immeasurably assist us by bearing in mind the importance of submitting complete and accurate reports at the earliest opportunity, giving all pertinent information as to the patient, and also the type of service rendered.

In the adjudication and adjustment of Blue Shield claims, Minnesota Medical Service, Inc., is pleased to announce that Dr. Edwin J. Simons, formerly of Swanville, Minnesota, as of November 1, 1950, assumed the position of medical director.

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BOOK REVIEW

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THE MANAGEMENT OF OBSTETRIC DIFFICULTIES. By Paul Titus, M.D., Obstetrician and Gynecologist to the St. Margaret Memorial Hospital, Pittsburgh; Consulting Obstetrician and Gynecologist to the Shadyside Hospital, Pittsburgh; Secretary of the American Board of Obstetrics and Gynecology; Member Reserve Consultants Advisory Board, Bureau of Medicine and Surgery, United States Navy (Captain, MC, USNR). 4th ed. 1046 pages. Illus. Price $14.00. St. Louis: The C. V. Mosby Company, 1950.

The purpose of this edition, as has been the purpose of the other editions that Titus has written on management of obstetric difficulties, is to provide information that can be made quickly available to aid one's judgment in the proper management of obstetrical problems and emergencies. It is therefore, very useful to the general practitioner as well as the obstetric specialist. Fundamentals and theories have been eliminated to make the material more concise. Emphasis has been placed on diagnosis and treatment. The book covers by sections, the topics on sterility, difficulties in diagnosis of pregnancy, complications of pregnancy, complications of labor, obstetric operation, complications of the puerperium, the newborn infant, special supportive measures.

Many advancements have been made since the third edition was published in 1945. These perhaps can be best summarized in the word of Paul Titus himself in his preface to the fourth edition:

> "New developments in sterility studies and treatment, the current management of threatened and habitual abortions, the changes in management of placenta previa, present views on toxemia of pregnancy, the prevention and management of hemorrhage and shock, are some of the additions in revision. Changes in technique including, induction of labor, preparation for delivery, perineorrhaphy, the management of third stage labor and of retained placenta are described. The chapter on general diseases complicating pregnancy has been added to and revised. The chapter on pelvic mensuration and evaluation by x-ray has been extensively revised and rewritten. New methods of analgesia and anesthesia are discussed."

In an attempt to maintain uniformity of terms before this book was written, a conference was held between Greenhill, Eastman and M. McCormick. Uniform terms were decided upon by these men, and Titus has carried out the use in this edition.

The book is a "must" on the new book list for general practitioners in the country where immediate consultation is not available. It should also be of considerable comfort and interest to the resident staff members to help them in their obstetric problems as they arise. To the specialist it is an important reference book for the unusual complications that arise during pregnancy and labor. The book is well indexed to make the material readily available and also has many references for further study.

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(Continued from Page 1236)

Gold has three convictions in the District Court of Hennepin County, Minnesota, for practicing healing without a basic science certificate. He was first convicted May 21, 1946, and placed on probation for one year. In 1948, he was arrested a second time and was sentenced on March 8, that year, to serve one year in the Minneapolis Workhouse. Gold served the entire sentence less time off for good behavior. Gold was convicted a third time in January, 1950. According to Gold's statement, he was born in New York City and worked in a hospital there as an orderly. When he first came to Minneapolis he was, likewise, employed in a hospital in the capacity of an orderly.

Minneapolis Woman Sentenced to Three-year Prison Term for Fraud in Obtaining Narcotic Drugs

Re: United States of America vs. Helen Geneva Rudd.

On November 7, 1950, Mrs. Helen Geneva Rudd, aged fifty-two, 4426 42nd Avenue South, Minneapolis, was sentenced by the Hon. Matthew M. Joyce, Judge of the United States District Court at Minneapolis to three years in a Federal penal type institution. Mrs. Rudd will serve her sentence at the Federal Women's Reformatory at Alderson, West Virginia.

Mrs. Rudd was arrested by Federal narcotic agents on October 17, 1950, following an investigation which disclosed that she had given a false name to a Hennepin County physician in obtaining dilaudid. Mrs. Rudd has a long record of drug addiction. On September 27, 1934, she was given a suspended sentence in the United States District Court at Minneapolis, of eighteen months in a Federal penal institution for violating the Harrison narcotic law. Mrs. Rudd violated her probation and on May 1, 1936, was ordered committed to serve her sentence. Following her release, she was again arrested in July, 1938, for a similar offense, but was acquitted by a jury. In January, 1943, Mrs. Rudd was again arrested for violating the Harrison narcotic act, and on March 2, 1943, entered a plea of guilty at Minneapolis. The charge involved the forging of medical prescriptions. Mrs. Rudd was placed on probation on condition that she take treatment at the Government Hospital at Lexington, Kentucky. She entered the Hospital and was released on March 24, 1945. One week later she was arrested for again attempting to obtain narcotic drugs. Her previous probation was revoked and she was ordered committed to serve her sentence.

In the present case, Mrs. Rudd persuaded a physician to issue fourteen prescriptions for dilaudid and one for codeine in a period of less than one month. The physician who prescribed the narcotic drugs has been ordered to appear before the Minnesota State Board of Medical Examiners at its next regular meeting.

MINNESOTA ACADEMY OF MEDICINE

(Continued from Page 1249)

4. Cases have been mentioned in which variable results are obtained, depending on the stage of the disease or where surgery is still in the experimental stage.
5. Along with this discussion we have presented cases with which we have had personal experience.

Dr. Francis W. Lynch, of Saint Paul, read a paper on "The Quantitative VDRL Test for Syphilis."

The meeting was adjourned.

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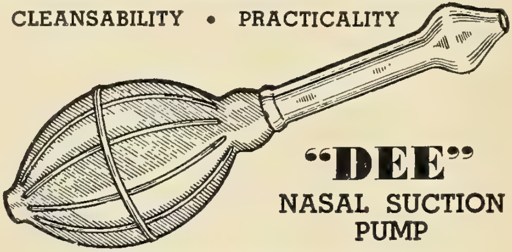

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WANTED—General practitioner to take over practice by lease or purchase, at very reasonable terms, in prosperous western North Dakota community within next six weeks. Full particulars by mail. Correspondence solicited. Address E-236, care MINNESOTA MEDICINE.

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